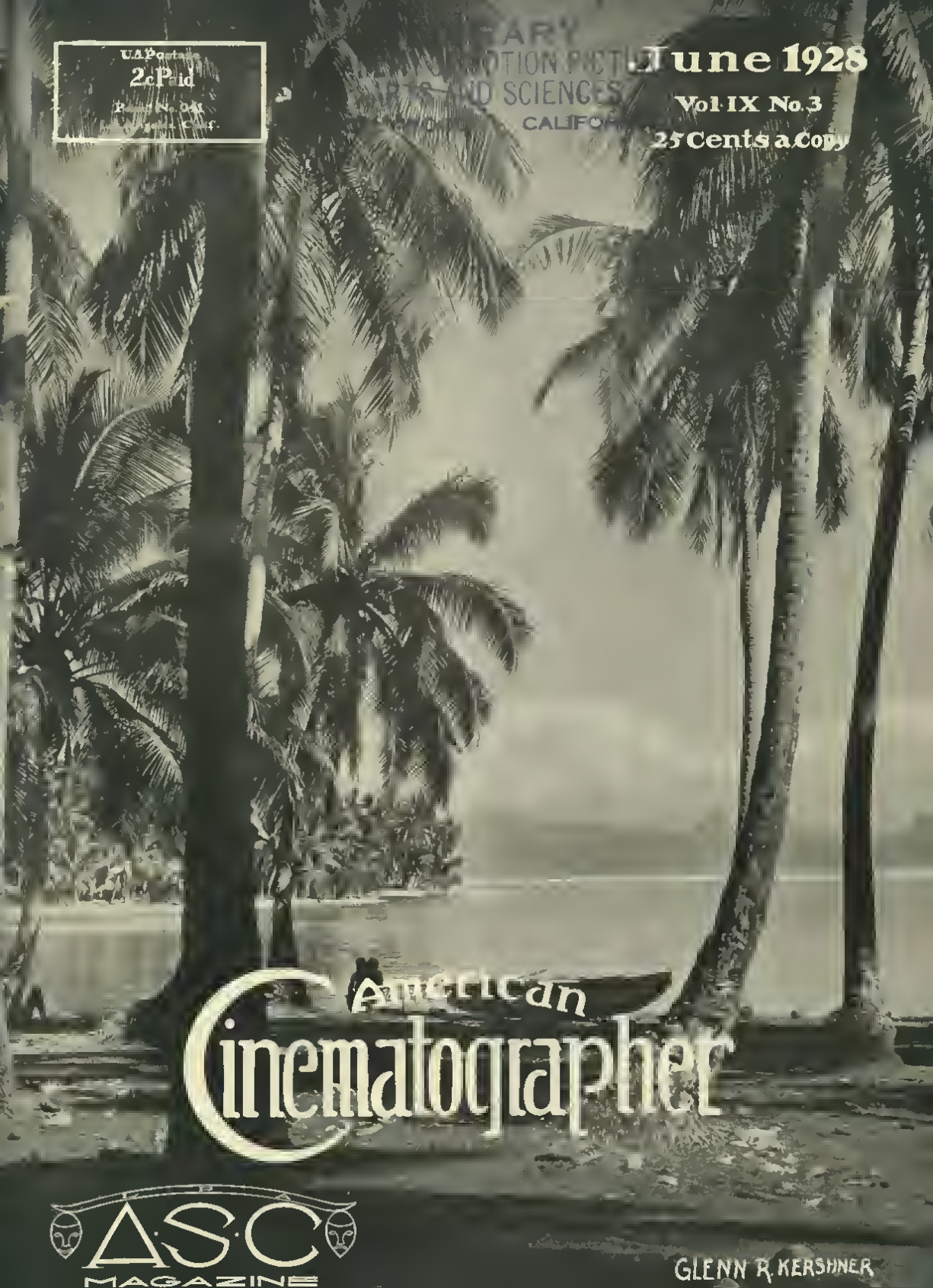
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American Cinematographer

A.S.C. MAGAZINE

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American Cinematographer

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EDITORIAL--The Voice of the A. S. C.

The growth of the motion picture as an institution is of such world wide magnitude that it is one of the signs of the times and, in step with the growth and expansion of the cinema, is the advance of cinematography.

The cinema has reached the pinnacle of importance—it is being used among the nations as an ace-in-the-hole to trade with and as a club for coercion. Very soon it may take its place as the most important industry in the world because the most potent for constructive good, and as the cinema prospers so shall prosper the cinematographer, the fulcrum upon which the cinema turns.

We admit no limit to cinematography, for so long as millions are spent annually in scientific research to probe the depths of sound and light and color and mechanics cinematography may still expect to advance—even until scientific research is no more.

It is not believed that even those nearest to the heart of the industry appreciate the tremendous power and the unlimited possibilities of the motion picture as a major tool which the God of history has put into the hands of man to do His work.

Everywhere we hear of this onward march of the cinema. There used to be a slogan: "Trade follows the flag." Nowadays it is: "Trade follows the pictures." They have proved to be the greatest sales force ever invented. We hear of a chair concern which had tried for years to market its product in the Orient. Suddenly the sales manager got a bright idea. He had motion pictures made showing the comforts of easy chairs and the effect was instant and profitable. The pictures sold chairs to people who for a thousand generations had sat cross-legged on the floor.

This, of course, has to do with industrials, but it is useful to illustrate that here is developing a new field for the expression of cinematography. In dramatics, sports, scientific research, in business, schools, in the home, everywhere the cinema has either a permanently established place or is winning its way and looking for greater fields to conquer.

What will follow the pacification of China, the opening of Russia, the industrial regeneration of India, the pushing of the frontiers of civilization into Central Asia, the development of South America and Africa? A prominent Chinese believes that ten thousand picture theaters will follow the war and many pictures to supply them will be made in America.

Television is already a fact, although not yet available for popular use, but it is on the way. There are immense possibilities in aviation, for the dirigible and the balloon have not yet been utilized to their limit in pictures, and planes are improving every day. Stereoscopic and color photography in perfection are on the way and what man is wise enough to predict the amazing revolutionary inventions, improvements, refinements, that will surely come with the further evolution of the art?

One genius sees a camera that will do almost everything but write a story, and who shall fix the limits of a camera in view of its evolution since the earliest models?

A birds-eye view of the field, therefore, has in it nothing discouraging to cinematography, but there are many adjustments that must come from time to time and while the industry is in evolution so too, are individuals.

Cinematographers (real ones) are not born—they are made through training and experience but the foundations of their technique are the artistic temperament and character. If the individual have these, his place is photographing motion pictures, but if he have not these, he will find his success in other fields.

The mining engineer has no business editing a newspaper.

The A. S. C., as its part in the great and wonderful scheme called the cinema, is pledged to inculcate and to uphold the ideals of Loyalty, Progress and Art and these are the lights that illumine the pathway of cinematography and guide the feet of the individual cinematographer, whose goal can be nothing short of the greatest achievements possible to his profession.

The A. S. C. is a welfare, social and educational organization with no ax to grind, no politics to play, "no enemies to punish nor friends to reward" and it is jealous of the standing of its members.

To this Society "A. S. C." is the hallmark of the highest excellence in cinematography and this standard will be maintained at all costs.

Through past administrations the exalted principles of the A. S. C. have been upheld and made to command the respect of the world at large and the motion picture industry in general, and the incoming administration will not be any the less alert or steadfast in maintaining the time honored standards of the Society.

This administration, while foreseeing a year of adjustment in 1928-29, looks to the future with no lack of confidence that prosperity will be the heritage of every member of the industry who deserves success and it hails all other departments in the true spirit of fraternity and co-operation.

After the Battle of Santiago, Commodore Schley said: "There is glory enough for us all."

This spirit might well be fostered by the several nations battling to achieve supremacy in films. The field is the wide world and, as in all contests, the fittest will survive in spite of embargos and interior legislation. No good picture will be lost, whether it be Italian, French, Spanish, English, German, Russian, American or other. Let each do his part and reap his reward without thought of exploiting or hindering his neighbor. There is enough for all.

The tremendous interest in aviation and its influence upon motion picture production is rapidly developing a class of specialists in aviation cinematography that may bring about the establishment of a new classification in the A. S. C., for men of foresight see a steady development in this line of work. They reason that, as aviation is in its infancy, so also is aviation cinematography, and that as aviation develops so will the air picture, developing along with it, become a staple in the motion picture industry and demand specialization in cinematography. And this suggests that still another class—the talking picture cinematographer—is here in our midst and already functioning. Verily, cinematography is expanding into new fields.


"Stills still Move the Movies"
This layout was shot by Ross Fisher A.S.C. way back in the days when JEAN GAUNTIER was a star"
Do they make 'em any better in 1928 than they did in 1913?
Lower two pictures take 1 F 100

They Are Better in U.S.A.

Harold R. Hall Tells Why There Is No Need for European Directors to Bring Their Cameramen to Hollywood

(Reprinted from Motion Picture Classic)

America may import her limburger cheese from Germany, her caviar from Russia, her sardines from Sweden, her fashions in lingerie from France, and her motion picture directors and stars from all four countries, but when it comes to cameramen—the "Made in America" sign appears to be the stamp of approval.

For many, many moons stern-faced and rather heavy directors from Germany, lean-figured and hungry-looking directors from Sweden, and others of various shapes and visages from other climes have come thundering into America on great waves of publicity.

Lubitsch, Gade, Christiansen, Dupont, Stillar, Seastrom, Mendes, Korda, Buchowetzki, and others too numerous to mention, have entered our gates, gazed upon us in a very superior way and have tacked their names to contracts calling for weekly checks that would buy out a dozen assorted foreign dukedoms.

And, the stars, especially of the weaker sex, have been carried to America in royal suites, treated like visiting queens, and in general have been led to believe that America is the land of free advertising and brave bankroll dispensers.

But—back in the homeland, calmly and patiently grinding away, have always been left the cameramen whose lighting and magic of the camera have made the faces of the stars and the reputations of the directors something that America can't seem to stop talking about. Nary a cameraman has seemed able to get a firm grip on the coat tail of a visiting American producer.

And why?

For months and months the newspapers and magazines which devote space to motion pictures have been filled with columns of unstinted praise of the work of these cinematographers. Freund, Hoffman and others have had more adjectives slung at them than all our presidents combined.

Critics who pride themselves on the non-use of superlatives, are now apologizing because there are not enough to express their feelings toward the foreign cameramen.

But—only directors and stars have joined the ranks of the cheeses and caviar. There are no importations of the cameramen. They have been left behind.

They're Just as Good Over Here

We started out to learn why, and, after talking it over with both foreigners and our own producers, have come to the conclusion that our motion picture producers have discovered something that our critics and public have overlooked these many years—namely, that American cameramen are just as good as the foreigners, maybe better.

That may sound startling, perhaps even radical in this period of the foreign parade, but we quote as authority one of America's biggest producers—Jesse Lasky, vice-president in charge of production of Famous Players. His organization makes a big share of our American pictures. He ought to know what he is talking about. His company has imported such celebrities as Pola Negri, Greta Nissen, Lya de Putti, Erich Pommer, Mauritz Stiller, Emil Jannings and others too numerous to mention. But, as yet, there are no foreign cameramen among his firm's importations.

We asked him why he is not bringing over the cameramen, inasmuch as the public seems to be more carried away with the work of the cameramen than with that of the stars or directors. Mr. Lasky explained that American cameramen are doing an excellent job of picture making, and even went so far as to suggest in a subtle manner that in the making of many of the greatest German motion picture successes, one Herr Erich Pommer, formerly producing genius of the great UFA studios, and recently of Famous Players, really had more to do with the marvelous effects in the pictures than did the cameramen themselves.

"Brilliant photography in 'Variety,' Metropolis,' 'The Last Laugh' and other German pictures imported to America has focussed the admiring attention of the film industry, as well as the general public, upon the excellence of German cameramen," said Mr. Lasky. "They have employed their skill to marked advantage in dramatizing the unfolding of a story upon the screen.

"But, while we in the film business are grateful for the stimulating influence exerted by the novel photographic effects of 'The Last Laugh' and 'Variety' upon our own technical workers, still it must not be forgotten that our own cameramen have borne the brunt of production for years and have made a uniformly fine job of it.

"Then, too, American cameramen have accomplished some truly splendid feats of pictorial art. For example, the trail of 'The Covered Wagon' will be remembered as long as films endure. Karl Brown did that.

"In 'A Kiss for Cinderella' Roy Hunt performed a wonderful achievement in transforming the mice and pumpkins into a fairy coach and four. The same cameraman made some exceptionally beautiful desert scenes for 'Beau Geste.' And, who, of the millions who witnessed it, will ever forget the parting of the waters of the Red Sea in 'The Ten Commandments'? That and other marvelous effects stand to the credit of Roy Pomeroy.

"The most recent illustration of the effective part that superior photography may play in heightening dramatic effect is the work of Harry Fishbeck in 'The Sorrows of Satan,' and of the combined minds of Erich Pommer, the producer, Mauritz Stiller, the director, and Bert Glennon, the cameraman, in filming of 'Hotel Imperial,' Pola Negri's latest picture."

Here Mr. Lasky lifted the crown of cinematic glory, or at least a part of it, from the heads of the foreign cameramen, and placed it upon the brow of a producing genius instead.

"Consideration of 'Hotel Imperial' brings up a point," continued Mr. Lasky, "which we of Paramount feel extremely proud. I refer to the importation or Erich Pommer. This young man, producing genius of the famous UFA studios, was himself responsible to a pronounced degree for the greatness of 'Variety,' 'The Last Laugh,' 'Metropolis,' 'Passion,' 'The Cabinet of Dr. Caligari' and other remarkable photoplays that have come from across the Atlantic. Mr. Pommer is now in Hollywood. In his first American effort, 'Hotel Imperial,' he has furnished a striking example of how a moving picture camera may be used in enhancing the dramatic recital of a story upon the screen."

So now you know why Famous Players is not bringing over German cameramen. Our own, in the opinion of Mr. Lasky, are good enough. And, after all, the producing genius has the ideas which makes for real greatness.

Three cheers for Yankee Doodle!

Executives of First National and Metro-Goldwyn-Mayer refused to comment upon the subject. What they think remains their secret, but they are not importing cameramen.

Korda's Tip-Off

However, Alexander Korda, who started his career as a newspaper man in Budapest and finally became one of the noted UFA directors, was not a bit backward about

explaining why the foreign cameramen are not being brought along with the directors.

Mr. Korda, at this writing, is the latest foreign director to land on these shores, having been signed up by First National.

"Why didn't you bring your cameraman with you?" we asked.

"Would you expect your wife to take a fashion book to Paris with her if she was going to buy clothes?" asked Herr Korda in excellent, if halting, English.

He laughed. So did we. You could tell at once that Herr Korda had an idea or two which he was willing to share.

"You see," he continued, "you have just as wonderful cameramen in America as there are abroad. Only you people do not seem to realize it."

"But surely, Herr Korda," we insisted, "American cameramen cannot compare with those abroad."

"Don't talk foolish," he replied. "Do you know, over in Europe your American pictures are a regular high school and college of motion picture making for us in the picture business! We go to see them all; to study the work of the directors and the cameramen. We learn from them and then give it back to you in our own best pictures."

There was a thought we had never heard expressed before. "This man Korda is either darned honest or a great flatterer," we thought.

"But I will let you in on a little secret," added Korda. "You see, after all, it is not so much the genius of the cameraman that makes the foreign pictures great. It is the combination of the director AND the cameraman. Not the cameraman AND the director; but the director AND the cameraman. Do you understand what I mean? Yes?

"I, perhaps should not talk about this, as it is delicate ground, and I do not want to hurt anyone's feelings. But I must say that a good director can make a great picture if he has a cameraman who will co-operate with him. No matter what the nationality of the cameraman, if he will co-operate with his director the picture will be a success, if the director is good.

"If you take an excellent cameraman and put him with a poor director, you will get a picture in which there are perhaps many pretty scenes, but it will be a poor picture. But if you put a good director with a poor cameraman who is willing to co-operate, you will see a great picture result.

The Average of Foreigners Is Terrible

"However, I do not desire a foreign cameraman. I have seen too much excellent camera work by your American cameramen. I believe, as a whole, you have the finest cameramen in the world. You in America do not see the camera work of all our pictures. If you did, you would not be talking about our great cameramen. As a whole, the camera work in our pictures is terrible.

"You must understand this. Over here in America you only see our 'Big Parades,' if you understand what I mean. Only our very best pictures—a very few—are sent over here. You do not see the others. But we over here see all of yours and marvel at the generally fine camera work. You do not need our cameramen. You have the best in the world."

Rise and take a bow, all you American cameramen. You are coming into your own. Just like New York State cheese.

Mendes Speeks His Piece

"If I understand correctly, you are now raising bamboo in America," said Lothar Mendes, another importation in the directorial ranks. "If I am rightly informed, this is just as good as any raised in other parts of the world. I, personally, have found the finest cameramen I have ever met in Ernest Haller, who has worked with me since my arrival.

"Haller is better than any German cameraman I ever worked with. There must be others just as good in this country if they are given a chance. Why should we ask for German cameramen when we can get such as Haller?

"Anyway, there are only a few good ones in Europe. Freund and Hoffman stand out. But Freund has been made a producer by Fox. The others are not so good. They have had what you in America call the lucky break. But you do not need them. You have the greatest cameramen in the world right here. Why not use them?"

So it looks as though all this talk about the wonders of the foreign camermen is more or less a state of mind. Our own boys who turn the crank apparently are pretty good after all. What they really need is a good press-agent. They've been hiding their light under the well-known bushel and have also refrained from blowing the trumpet. It is the custom to frown upon the native son—for a prophet is without honor in his own country.

American cameramen have been content to do their work without any bombast. When one of them turned out something marked Excellent, it was generally called a mistake. They've been hard at it for years hitting a high average—without benefit of camera angles to exploit them.

As for these camera angles, the American men who turn the crank have been on speaking terms with them for years. The point is they were known under different names such as lights and shadows.

The German directors have been very generous—very fair in giving credit to American cameramen. It stands as a high tribute, indeed, when they come out flat-footed for the boys of Hollywood and environs.

The trouble is that the American film critics suffer from astigmatism when they look over an exceptional German picture. They pounce on the overworked camera angles and sigh for their appearance in American films—ignorant of the fact that these angles have been given to them all the time—under a different name.

Someone must have handed our producers each a pair of green glasses when they were gazing over the fence, as it were, looking at the motion picture grass which seemed so green while their own appeared terribly brown.

Vice-President Rosher Entertains

The newly elected officers and members of the Board of Governors were entertained at the home of First Vice-President Charles Rosher Saturday night, May 5th. The guests were:

Victor Milner, Daniel B. Clark, George Schneiderman, L. Guy Wilky, Frank B. Good, Alfred Gilks, Charles Boyle, John F. Seitz, Joe A. Dubray, Fred W. Jackman, John W. Boyle, E. Burton Steene, Ira H. Morgan, Alvin Wyckoff, Attorney Arthur Webb and General Manager Silas E. Snyder.

The Rosher home, one of the most charming in all the Southland, is located on the famous Uplifters' Rancho in Santa Monica Canyon, and here Mr. and Mrs. Rosher dispense a hospitality at once charming and generous. The house, an old English mansion, is built into a hill, landscaped with a marvelous setting of greenery and flowers, the piece de resistance of the ensemble being a water fall so natural in appearance that it might always have been there.

The interior of the house reflects the exquisite taste of the Roshers, both of whom are of artistic temperament, but the feature which appeals most to the masculine fancy is a wonderful rathskeller so perfect in its design, decoration and appointments as to appear literally to have been lifted from an old town hall of medieval times.

This party was strictly stag and informal and the dinner served was never excelled either in Old England or in Southern California, and it will be many a year before its delicious flavor fades from the palates of the delighted guests.

Former President Dan B. Clark is getting close to the finish on the big air picture he is shooting for Fox. Mr. Clark has been assisted by Elmer Dyer and Norman DeVol.

Photographic Reflecting Power of Colored Objects

By L. A. Jones

Extract Reprinted from
TRANSACTIONS OF THE SOCIETY OF
MOTION PICTURE ENGINEERS
Vol. XI. Number 31, 1927

The author gives in the original transaction the theory of the determination of the photographic reflecting power of colored objects and expresses how the **photocity** *curve determining this value for a colored pigment can be obtained for a given sensitive material and a given relative energy of the illuminant with due consideration given to the absorption of the photographic lens' glass.*

This theory **"establishes a definite cooception of the theoreticel relationship involved in the evelustion of reflection factor ie visual end photographic terms,"** *Mr. Jones says.*

The author states that for many of the light sources used in motion picture studios, the energy characteristic has not been determined with sufficient precision and therefore it is **practically much easier to determine reflection factors by e more direct method."**

The following is the reprint of Mr. Jones' transaction from which we have taken the liberty of also omitting some of the data pertaining to orthochromatic sensitive materials confining the transcription to the more widely used Panchromatic emulsions.

The reader is referred to the complete text of the transaction for more complete information on the subject.—Technical Editor.

The usual method and one which is generally considered to be satisfactory for the determination of visual reflection factors in the case of colored objects involves tbe use of the flicker photometer. The literature of this subject is very voluminous and no attempt will be made at this time to present e review of the material. It will be sufficient to state that a direct visual comparison of the surface whose reflection factor is to he measured with a surface of known reflection factor is made. The photometric field used is one in which the unknown and the known are alternately presented to the eye, the frequency of alternation being adjusted to an optimum value, the criterion of equality being the absence of flicker in the photometric field. It is necessary to use such a method when comparing **the brightness** of differently colored objects in order to minimize the disturbing influence of hue and saturation differences on the judgment of brightness equality.

The photographic reflection factor of an object can he measured by the usual methods of photographic photometry. This also involves the direct comparison of the unknown with objects or surfaces having known reflection factors.

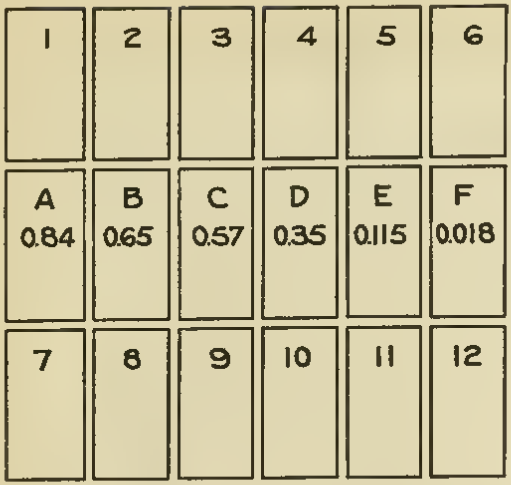
Surfaces which reflect to the same extent all wavelengths of radiation to which the eye is sensitive are said to be **non-selective,** and such colors are designated hy the generel term **grey.** If this constancy of reflection factor extends also throughout the region to which the photographic material is sensitive the surface is said to he photographically non-selective and the reflection factor of such a surface measured visuelly is identical with the reflection factor of the surface measured photographically. By choosing a series of such surfaces varying in reflection factor from a low to a high value end meking photographs of them along with the selectively reflecting surfaces of unknown reflection factor, it is possihle to determine directly the photographic reflection factor of these unknowns. This is the method usually adopted for such work and does not require a determination of the fundamental relationships referred to in the previous section.

Color Peoels

For tbis work a series of color panels was prepared using in so far as possihle well known and reproducible materials. From the lists published by Windsor & Newton Company a selection was made of a large number of pigments of oil designated as very permanent. This company has estahlished a good reputation for uniformity of products and these materials can be easily obtained. Hence anyone vitally interested in this subject can prepare samples duplicating very precisely those used hy us in this work. Pieces of Trootex ortist's board 6x12 inches were ohtained and given three coats of the pigment material. The pigment from the tube wos thinned to brushing consistency and turpentine to which was added a few drops of clear Japan drier. In some of the very dark pigments having extremely low reflection factors, it was considered advisable to raise the hrightness hy dilution with white. For this purpose the Windsor & Newton No. 1 White was used and dilutions were made to definite percentages by weight. In the tabulated results a percentage value following the name of the color indicates the percentage of colored pigment in the mixture, tbe remainder being No. 1 White.



In order to facilitate tbe photography of these panels along with the gray panels of known reflection factor, a frame was made as illustrated by the diagram in the figure Tbis was constructed very much like a window frame so that the penels could be put into position from behind and held in position by spring clamps. The center row lettered A, B, C, etc., was a series of gray panels and were made by exposing photographic developing out paper to different extents and developing in a solution designed specificelly to give a gray non-selective deposit. Tbe numbers as shown in the figure represent the reflection factors of the various penels. It was impossible to ohtain, hy using a matte photographic paper, a panel of as low reflection factor as was desired, hence for this panel, F,



a piece of undertakers paper was used having a reflection factor of .018. These panels were examined very carefully for selectivity and approached closely to perfection in this respect. The reflection factors for these standard gray panels were determined with the flicker photometer which was used also to measure the visual reflection factors of the color panels. Readings were made by several observers and the average taken. The other openings in the frame, 1, 2, 3, . . . 12, were filled with the color panels to be measured. This was then mounted in a perpendicular position and the camera lined up with its optical axis perpendicular to and passing through the center of the frame holding the test panels. The test panel was then illuminated by light incident at approximately 45 degrees and in this way the specular component of reflected light, if such existed, was thrown out and did not enter the camera lens. The values measured therefore are those of diffuse reflection factor. Photographs of the color panels were made using Panchromatic Cine Negative film. All of the panels were photographed with light of various qualities as given by the units commonly used in motion picture studio work.

Light Sources

Tungsten. The unit used for obtaining tungsten illumination was that described previously in a communication read before the society. The lamps were operated on the 10 per cent over-voltage, thus giving radiation of approximately 3200 degrees K color temperature.

White Flame Carbon Arc. The unity used was a Creco Broadside carrying 35 ampere twin arc trimmed with National Carbon Company white flame photographic carbons.

Orange Flame Carbon Arc. The unit used was a Creco Broadside carrying 35 ampere twin arc trimmed with National Carbon Company orange flame carbons.

Plain Carbon Spot. The unit used in this case was a Winfield Kerner 85 ampere spot light trimmed with plain (low intensity) carbons. This unit is equipped with a plano convex condensing lens of approximately 8 inch diameter and 12 inch focal length.

High Intensity Carbon Arc. The unit used was a 75 ampere G. E. automatic high intensity spot trimmed with the high intensity carbons. It was desired to obtain as nearly as possible radiation of the quality given by the G. E. sun arcs as used in the studios. The plano convex lens with which the 75 ampere spot is equipped was removed and in front of the housing was placed a silver mirror obtained from the Bausch & Lomb Optical Company and resembling closely in quality of glass and reflecting surface the mirror material used in the manufacture of the parabolic reflector with which the G. E. sun arcs are usually equipped. The light after reflection from these mirrors illuminted the colored samples under test.

Mercury Vapor Arc. Two 50-inch Cooper Hawitt tubes of standard DC type were used, one mounted on each side of the test frame.

Experimental Procedure

The amount of illumination incident on the test panels was adjusted to a value such that an exposure time of .04 seconds gave a density of approximately .5 on the area representing the back panel, F. The exposure time chosen is of the same order as that predominantly used in motion picture work and the density corresponding to the black object is sufficiently high to lie approximately at the lower end of the straight line portion of the density-log exposure curve of the photographic material.

The negatives were developed by the brush method, thus insuring a maximum of uniformity. The resulting densities were measured by means of a physical photometer employing a thermopile as the light sensitive element. The optical system of this instrument is such that the value read is that of specular density, the silver deposit being illuminated by a beam of collimated light. The negative image of each test panel was approximately ⅛-inch wide by 1 inch long and the densitometer was so arranged that this entire area was integrated, thus giving a density value which represents the average for the entire image. This procedure tends to eliminate errors which might be introduced by the presence of non-uniformity in the panel itself.

The author describes here the methods of finding experimentally the reflection factor of the color panels and follows thus:

Results

In table 2 are given the reflection factors of 25 different color panels as measured with panchromatic film under different qualities of illumination. The values in

Reflection Factors

No.	Name	Rv	Tung.		P.C.		H.I.	
			Pan.	Ortho	Pan.	Ortho	Pan.	Ortho
71	Spectrum Red	16.	18.	1.8-	4.8	1.8-	3.2	1.8-
72	Vermillion	22.	18.	6.0	11.	6.7	7.8	71.
66	" Orange	48.	24.	6.5	16.	8.8	12.	8.8
68	Cadmium Orange	38.	23.	6.7	12.	7.0	10.	8.1
46	" Yellow	68.	63.	7.6	17.	7.6	10.	7.6
51	Spectrum Yellow	49.	23.	7.6	13.	6.4	8.3	6.0
13	Chrome Yellow DO	30.	23.	8.1	13.	6.8	8.6	7.7
18	" " Orange	44.	30.	10.	20.	6.6	11.	8.8
18T	" " Lemon, 50	66.	34.	18.	28.	14.	16.	12.
53	Yellow Ochre	28.	16.	7.8	12.	8.8	10.	18.
107	Apple Green	43.	24.	18.	18.	10.	14.	11.
109	Emerald Green	56.	23.	68.	16.	18.	16.	17.
62	Cadmium Green	13.	10.	8.6	8.1	10.	7.8	8.4
81	Cobalt Green	18.	17.	60.	14.	17.	14.	13.
60J	Viridian, 50	16.	22.	26.	26.	33.	23.	62.
80W	Cobalt Blue, 25	87.	42.	50.	64.	68.	58.	60.
82S	Prussian Blue, 25	8.0	14.	60.	20.	62.	17.	60.
830	French Ultramarine, 50	10.	62.	33.	30.	41.	36.	31.
83	"	4.0	5.0	7.0	6.4	6.8	6.6	7.6
30	Ultramarine Blue	4.6	13.	61.	19.	23.	17.	26.
64	Cobalt Violet	12.	26.	28.	26.	35.	66.	32.
658	Spectrum Violet, 18.8	8.6	16.	20.	20.	26.	18.	21.
66	Permanent Violet	6.2	6.3	8.8	8.0	13.	8.6	10.
95L	Purple Lake, 50	8.7	11.	13.	14.	16.	11.	15.
96	Magenta Lake	4.6	3.8	6.2	6.0	8.8	4.6	3.2
73A	Permanent Crimson, 60	6.6	6.8	8.1	16.	18.	8.7	11.

the column Rv are those of **visual reflection factor** as determined by the flicker photometer method. It is obvious that for perfect orthochromatic reproduction the photographic reflection factor of a panel should be identical with that as shown under Rv. The reflection factors, Rp panchromatic, are given in the last six columns of the table. The abbreviations at the head of the columns designate the quality of light with which the panels were illuminated. The significance of these abbreviations are as follows:

Tung.—Radiation from incandescent tungsten at color temperature of approximately 3200 degrees K.

O. F.—Orange flame carbon, 35 ampere twin arc in Creco Broadside.

P. C.—Plain carbon, 85 ampere arc in Winfield Kerner spot light unit.

W. F.—White flame carbon, 35 ampere twin arc in Creco Broadside.

H. I.—High intensity arc on the G. E. 75 ampere high intensity spot light unit.

Hg.—The Cooper Hewitt mercury vapor arc, 50 inch standard D. C. tubes.

The colors are arranged in the table approximately in the same order as the colors in the spectrum from red to violet. The light sources are arranged with tungsten the "yellowest" in the first column and progressively to the right from this column the quality of illumination becomes "bluer." It will be noted that in case of the red, orange, and yellow colors the reflection factor decreases as the color of the illuminant becomes bluer. This of course is to be expected. This general gradient of decreasing reflection factor for increasing blueness of illuminant continues down into the green region and for Emerald Green, Cadmium Green, and Cobalt Green, the reflection factor is very nearly independent of the quality of the illuminating radiation. In the case of Veridian, which is a blue-green, the gradient is reversed and the reflection factor tends to increase with the increasing blueness of the illuminant. This continues in general into the blue region and is true for some of the violets. It should be remembered that the pigment color designated as violet is really a mixture of red and blue, not a pure spectral color. Hence the reflection factor for some of these pigment violets is practically independent of the color of the illuminant. This follows from the fact that they are reflecting both red and blue and hence on panchromatic film tend to balance fairly well. Purple Lake (No. 95L) is a mixture of red and blue in which the blue is still predominant, but in the case of Magenta Lake (No. 96) the red has become predominant and the reflection factor for this tends to behave in the same manner as the red pigment although the gradient as the "blueness" of the illuminant increases is not as great as for a pure red. Permanent Crimson (No. 73A) is a color in which red is greatly predominant but it does reflect some blue or short-wave radiation. It therefore tends to behave more like a red than like a blue. It will be noted that on the average the reflection factors of these colors as measured with tungsten on film are more nearly equal to the visual reflection factors than for any other light source. This demonstrates very clearly the advantage of using tungsten illumination with panchromatic film when it is desired to obtain approximate orthochromatic rendering of the colored objects.

Reflection Factors, Panchromatic Film

No.	Color	Ry	Rp (Panchromatic)					
			Tung.	O.P.	P.C.	S.P.	H.I.	Hg.
71	Spectrum Red	12.	12.	8.0	4.8	3.4	3.8	1.8
72	Vermillion	22.	18.	16.	11.	8.6	7.8	5.8
88	" Orange	46.	24.	17.	26.	15.	11.	7.1
80	Cadmium Orange	36.	23.	17.	12.	11.	10.	8.8
48	" Yellow	53.	83.	80.	17.	13.	12.	8.1
81	Spectrum Yellow	48.	22.	18.	13.	18.	8.3	7.1
18	Chrome Yellow DO	30.	23.	80.	14.	13.	8.8	8.8
84	" " Orange	84.	30.	87.	80.	17.	11.	8.8
16T	" " Lemon, 50	66.	34.	30.	84.	22.	18.	13.
23	Yellow Ochre	28.	16.	14.	12.	9.6	10.	7.1
107	Apple Green	43.	88.	80.	17.	16.	14.	12.
108	Emerald Green	38.	23.	16.	18.	20.	16.	12.
62	Cadmium Green	13.	10.	8.3	8.1	8.6	7.8	8.8
61	Cobalt Green	18.	17.	18.	14.	18.	14.	18.
60J	Viridian, 50	16.	88.	17.	26.	80.	23.	84.
60W	Cobalt Blue, 26	27.	42.	48.	84.	61.	84.	80.
62E	Prussian Blue, 25	8.0	14.	18.	20.	18.	17.	17.
230	French Ultramarine, 50	10.	22.	28.	28.	25.	30.	34.
63	" "	4.0	8.0	8.8	5.4	8.2	8.5	8.8
30	Ultramarine Blue	4.8	13.	14.	18.	17.	17.	18.
64	Cobalt Violet	12.	26.	24.	28.	30.	30.	37.
66E	Spectrum Violet, 12.8	8.8	14.	14.	20.	18.	18.	61.
66	Permanent Violet	6.2	8.0	8.8	8.0	10.	12.	14.
95L	Purple Lake, 50	8.7	11.	11.	16.	12.	11.	12.
96	Magenta Lake	4.0	3.8	4.0	2.9	3.8	7.8	3.8
73A	Permanent Crimson, 50	8.8	8.8	8.0	8.7	7.1	8.7	11.

In the table are given reflection factors for the same group of color panels as measured with orthochromatic motion picture film under three different illuminants and for comparison along with these are given the values as determined by means of panchromatic film. Measurements of reflection factor were made using both the Par- and Super-Speed motion picture negative film. The values obtained with these two materials were so nearly identical that they were averaged and are given merely under the designation **Ortho**. This result of course is to be expected since it is well known that the spectral distribution of sensitivity is practically identical for Par- and Super-Speed motion picture negative film. In the two columns under the general heading of **tungsten** are given the reflection factors as measured on panchromatic and orthochromatic film. It will be noted that for the red, orange, yellow, and yellow-green pigments the reflection factor as obtained on the orthochromatic material is appreciably less than that obtained with panchromatic; while in the case of the blue-greens, blues, and blue-purples, the orthochromatic reflection factor is appreciably greater than the panchromatic reflection factor; and in the case of those violets which contain red and blue in balanced proportions the reflection factors are about the same. The values obtained when the panels were illuminated with light from the plain carbon arc show the same general tendency as in the case of tungsten but the difference between the factors on orthochromatic and panchromatic materials is not in general as great. In the case of the high intensity arc the same difference exists but are even smaller than in case of the plain carbon arc. Some of the values given appear rather erratic but the factors which determine the photographic reflection factor of a particular color are so complicated that it is difficult to predict just what the reflection factor under any specified set of conditions should be.

It is thought that further data of similar nature relating to various materials commonly used in motion picture studio work will be of considerable interest and value. It is proposed, therefore, to extend these measurements to include a larger number of materials among which will be typical samples of the woods used in the manufacture of furniture and for the interior trimming of homes and public buildings. The twenty-five colors, relative to which data are given in this paper, represent but a small part of the panels which have been prepared for experimental purposes. The data relating to the remainder are not complete at the present moment and will be given in a later communication.

The author wishes to acknowledge his indebtedness to various members of the staff of his laboratory for assistance in carrying out the experimental work reported in this paper. The flicker photometer used for obtaining values of visual reflection factors was designed and constructed under the supervision of Mr. E. M. Lowry. The measurement of values of visual reflection factors was made by him and his assistant. The photographic photometry involved in the determination of photographic reflection factors was carried out by Mr. M. E. Russell.
September, 1927.

Unique Position

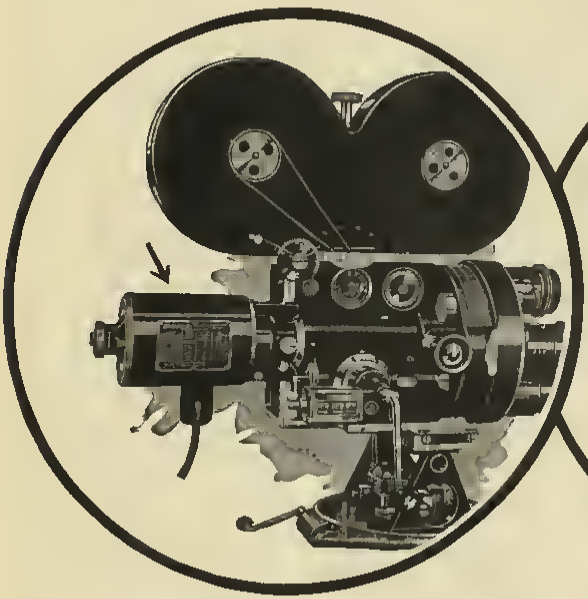
E. R. DuPar, A. S. C., first talking picture cameraman in the ludustry, who is under three years' contract to Vitaphone, has just completed an eight-reel Vitaphone feature for Warner Brothers with a star cast including Wheeler Oakman, Helene Costello, Cullen Landis, Mary Carr and others, directed by Bryan Foy. The picture has only two titles—main and credit.

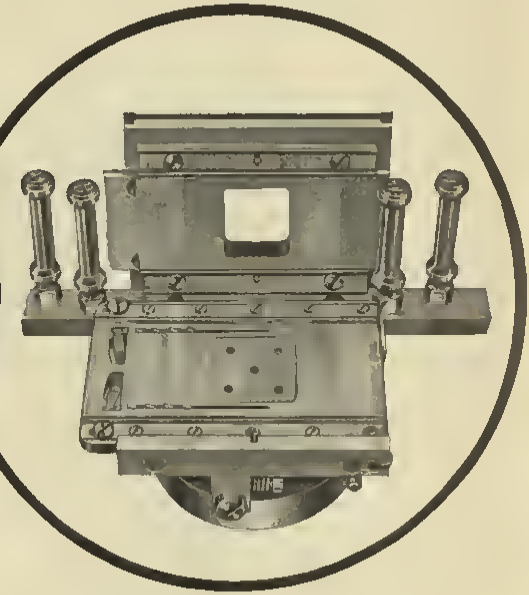
During the past two years since he signed with Warner Brothers, Mr. DuPar has shot more than three thousand Vitaphone numbers, including grand opera and stage stars and many prominent men and women in public life. He did his first work in the talking picture line experimenting in the laboratories of the Bell Telephone Company and the Western Electric Company. Mr. DuPar is in the unique position of being the only Vitaphone cameraman in the world.

Alvin Wyckoff, member of the Board of Governors of the A. S. C., has gone to Calgary, Canada, as chief cinematographer for British Columbia Pictures, Limited. He expects to be away about eight weeks, a portion of which time will be spent on the Prince of Wales' ranch. The chief activity of the expedition will be to shoot a super-Western picture for British release.

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Our A. S. C. Outposts

The Pageant of the Far East As Caught by the Camera of a News Cinematographer

[The American Society of Cinematographers has many outposts in remote parts of the world and one of the most active of these is Mr. Len Roos, who makes his headquarters at Sydney, Australia. From this center Mr. Roos works the South Seas, the Indian Ocean, Southern Asia and even gets into the Philippines, Japan, and China occasionally. Some months ago the editor asked Mr. Roos to write a journal of his travels and cinematographic adventures. This he did in his own inimitable style and, of these, four installments have arrived at the office of THE AMERICAN CINEMATOGRAPHER. *But because of the great lapse of time since the first two were written, Mr. Roos' Journal will be inaugurated with his No. 3 consignment herewith presented. In his narrative Mr. Roos tells of his difficulties in shooting pictures in the hot countries. In the July Cinematographer Mr. Roos will describe the Hindu annual Taipusan festival, an amazing spectacle of sacrifice*—EDITOR'S NOTE.]

COPYRIGHT BY LEN H. ROOS, *A. S. C.*

Sir Stamford Raffles founded Singapore for the British on February 6, 1819, purchasing the island from the then Sultan of Johore. There is no denying his foresight as the British government is spending millions of pounds constructing a naval base—the Singapore Base. When Raffles first founded Singapore about 100 natives lived there. Today the population numbers about 400,000 and it commands the international trade route between East and West.

When I arrived in Singapore on January 1, 1928, I found three large hotels which, according to their own advertisements, are noted for the following: The Raffles, for its orchestra; The Europe, for its food, and The Adelphi, for its sanitary arrangements. I selected the Europe, taking a chance on the orchestra and the sanitary arrangements. I had a very comfortable room at $15.00 per copy—per day. This includes—morning tea, breakfast, tiffin, afternoon tea and dinner. It also includes a private bath, which is upstairs over the room. It is the usual dipper bath, but not quite so fine as the ones in the Java hotels. Guests are cautioned not to attempt to get into the Java bath jar.

I understand that fifty-four different languages and dialects are recorded and interpreted in the courts. At the date of writing this I have learned a few words of Malay which is quite a simple language to study. For instance, a driver of a motor car is called a Sais. A very pretty drive in Singapore in the evening, with charming company, is to the "Gap," a good sized hill overlooking Singapore and the sea. Pergi (pronounced "Piggy") is "go" or "be off," so if you wanted to say "I love you" to some special company you just say "Sais, Pergi, Gap." Quite simple—I mean the language.

As Singapore is only eighty miles north of the Equator the climate is naturally hot. From November to March is the northeast monsoon—the rainy season. During this time it rains nearly every day. And when I say it rains —I mean RAIN. It comes down in bucket-size drops. Everyone wears whites and a sun hat—one of those white explorer's hats that are uncomfortable and weigh about a ton. One must sleep in a bed boxed in with mosquito netting and, in the daytime, to look smart, change your whites twice a day.

Singapore has modern buildings and it is possible to buy nearly anything you can get in New York at the good shops. The road to Raffles Place and Battery Road (the business section) passes over Cavanagh bridge and looking either way the river appears to be one solid mass of Sampans. Driving out of Singapore, towards Johore, the road is bordered with rubber trees.

The common mode of transportation for short trips is the Jinrickishas, the rate for the first class ones being about 8 cents (U. S. coin) for one mile. By the hour they are about 25 cents. The Jinrickisha puller has a springy trot that he can keep up for hours, so it seems. If you want to start trouble just pay a puller too much. If you pay him too little he will whine, but to pay him too much is to turn loose a tirade of abuse at your head. When you first ride in a 'Rickisha you will feel sorry for the puller, but one instance of over-paying him will affect a permanent cure of your philanthropic tendencies.

The humidity is terrific and this is what causes film trouble. I have my film specially packed in an accessory trunk, one compartment of which is fitted for this purpose. I load one magazine at a time in a changing bag and immediately after exposure I transfer the exposed film to a double tin containing calcium chloride. Any unexposed film in the magazine is transferred to another "drying" tin until I am ready to use it. I usually leave the exposed negative in the tin with the calcium chloride for about twenty-four hours. It is then wrapped in dry black paper (this paper is also stored in chloride tins; the old style 2000-foot positive tins are excellent for this) and then transferred to a 400-foot negative tin (also thoroughly dry). This can is taped and hot wax is applied to the tape to hermetically seal the contents. Film properly dried and sealed will keep for quite some time. If you don't want to go to all this trouble then the only alternative is to develop on the spot.

The great trick, if you intend to do this, is to find a laboratory. After you go through all the above explained ceremony the can is again wrapped in paper and enclosed in a wooden box and shipped. This sounds simple but you will find that there are forms to make out and a lot of explaining to do to the clerk (pronounced clark in British colonies) at the post office. After affixing the stamps you leave the box with the post office authorities to deliver to the address in New York, hoping that the mail people and the customs will pay some attention to the various labels cautioning them against opening the can in any kind of light.

I find the small Eymo type of camera is very useful at times in getting intimate scenes of shy natives. The camera has its advantages but loading these small magazines in a wardrobe or a changing bag require some of the skill of the late Houdini. The ordinary water runs out of the tap at about 80 degrees Far., therefore, if you want to make a test you call the boy and have him bring ice water to put in your test tanks. About the time you get shut up in the wardrobe the temperature of the solution will be about 65 degrees, and your own temperature about 110.

About one ounce of chrome alum to ten of hypo solution will keep the film from slithering off the base during fixation. I photographed a short subject the other day of a Chinese fortune teller. This chap squats on the sidewalk with a cage containing "Java Sparrows." When a client appears one bird opens the door of his cage, hops out and selects a card from a row of about twenty. The bird then selects a stick from a small tin and hops back in the cage where he receives one seed for his work. The fortune teller looks at the number on the stick, applies

this to the characters on the card and hands his client the usual line of applesauce that fortune tellers dispense. The client looks pleased, leaves about 2½ cents for the services rendered and shoves off down the street, happy in the thought that tomorrow he will make a million.

The average person reading the above will probably think: "If this fellow Roos gets paid for shooting that kind of stuff, he certainly gets his money easy." Let me explain what was necessary to do to get this "simple shot." In the first place, one must find the story. Walking about the streets one sees a great number of interesting things but will they be interesting on the screen? The story must be analyzed for screen possibilities and the idea worked out. The idea and not the film must be sold to the editor a few thousand miles away. The story may be of interest to you because you see it with all the atmosphere surrounding it. Can you get this atmosphere



in the picture? This is what was necessary to get the above mentioned story. I watched the old Chinaman with his birds for some time and then spoke to him. He couldn't speak English. I hunted up an interpreter and had him inquire about the screen rights of his fortune telling act. He was willing to dispose of the screen rights for $2.00 (Straits) net. To the interpreter: "Tell him must make picture some other place; too dark here." The interpreter conveyed this information and advised me that the fortune teller said it was Okay with him.

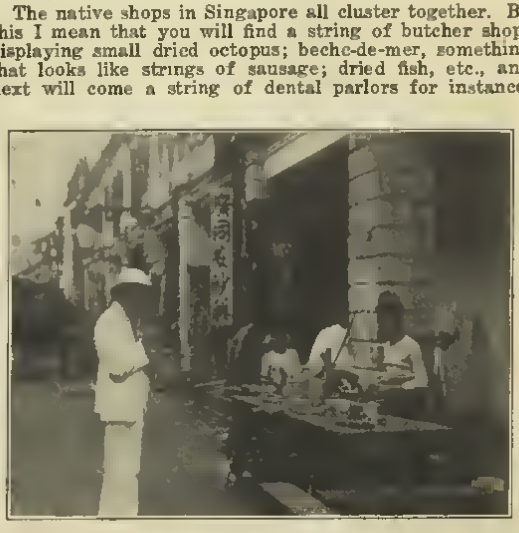
To interpreter: "Ask him when can do." The interpreter got this information and imparted it to me: "Can do this afternoon, two o'clock." At two o'clock I was there with the interpreter, but the man and the birds were not. Next morning I looked him up again and rushed off to find the interpreter. When we got back there it was raining. Decided to get it sure in the afternoon if it cleared up—it didn't.

The third or fourth morning everything was O.K. The sun was shining. The location I had was available, and the man was there complete with birds and all fortune telling apparatus. My interpreter conveyed fortune teller, birds and all equipment to my location in 'Rickishas and then the work started. To get the atmosphere I did a long shot of a crowded Chinese street, lapped this into a medium shot of the fortune teller all set up for business and then brought in a client (I will pass over the slight trouble I encountered getting a suitable client). We had to run through and photograph the whole business five times in order to match close-ups with the action, and when I finished the bird had been fed about eight seeds and was stuffed and sleepy; the fortune teller and the "telee" were bewildered, the interpreter was curious, and I was wringing wet from head to foot with perspiration. The total gross footage was 165 feet. I had to come back to the hotel and handle the negative as explained above, make tests, write a description of the story, clean and oil the camera (this must be done every day) and the following day box and ship the story. In about three months I will hear how good (or awful) this story is. To anyone who thinks he might like this sort of work I will give a short list of things I find it necessary to carry: Negative stock (specially packed. I use Panchromatic exclusively); Bell & Howell camera with complete equipment; Eyemo or other small standard hand camera; speed still camera; knocked down wooden shipping boxes, labels, stationery, typewriter, black paper, calcium chloride, drying out tins, tape, tools for camera repairs, rewinders, test tanks and chemicals in moisture proof containers, spirit stove and cup for waxing the tins, cable code books, changing bag, plenty of patience and a fairly substantial bank letter of credit. Besides these you will need your clothes and personal effects and an amiable disposition.

The big theaters are very comfortable and up-to-date. The projection is good and all credit titles are left in the print. The first show starts at 7:30 P. M. and is attended by the natives. This program is mostly Westerns and other pictures with plenty of action. The second show starts at 9:00 P. M. with an entirely different program. Europeans attend this late show and last Saturday night I saw at the Alhambra (Tan Cheng Kee & Co., Ltd., Proprietors) an excellent presentation of "Two Arabian Knights." The very excellent photography by Gaetano Gaudio, A. S. C., was commented on by an acquaintance who had remembered the cameramaster's name throughout the whole picture and this chap is not professionally interested in the motion picture business. If the average fan will remember the cinematographer's name through a whole feature picture, then he certainly is interested in who photographed the production, which proves that credit titles should be left in the picture and there is no argument as practical as this for taking them out.

A program distributed in the theater stated that "Behind the Front" would appear in the next change. It stated that "Wallace Beery, Raymond Hatton and Mary Brian than whom a greater screen comedy team has scarcely been seen." You can figure this out for yourself, but I fancy the point the management wanted to convey was that they were good. The censorship laws here must be the strictest in the world and a number of pictures are banned every year. They cut long kissing scenes, any gun or knife play, etc., in fact all the scenes any other censor would cut. All advertising, photographs and paper must be submitted to the censor for approval and any sort of publicity showing guns, knives, etc., must be painted out or the advertising destroyed. Censoring costs $6.00 per reel (Straits).

The native shops in Singapore all cluster together. By this I mean that you will find a string of butcher shops displaying small dried octopus; beche-de-mer, something that looks like strings of sausage; dried fish, etc., and next will come a string of dental parlors for instance.



Mr. Roos uses his Eyemo on a Siamese Cafe.

The Chinese and natives are very fond of gold teeth and these natives do a big business. The whole front of the "operating room" is open and the patient sits in the chair facing the street while the dentist measures him for a few gold crowns to be fitted to the front teeth.

(Concluded on Page 28)

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Adams, William S.—
Allen, Paul H —
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Balboni, Silvano—
Barlatier, Andre—M. G. M.
Boyle, Chas. P —
Boyle, John W —Warner Bros
Boyce, St. Elmo—Sennett.
Bridenbecker, Milton—Universal.
Brown—Jas. S., Jr.—F. B. O.
Benoit Georges—Maurice Tournaur, Paris
Brotherton, Joseph—
Broening, H. Lyman—Honolulu

Carter, Claude C.—Australia.
Cline, Wilfrid—Universal
Cronjager, Edward—Lasky.
Cronjager, Henry—Metropolitan.
Clark, Daniel B.—Fox Studio
Cooper, Harry H.—
Cotner, Frank M.—
Clarke, Chas. G.—Fox.
Cowling, R. T —Eastman Kodak Co., Rochester, N. Y.
Crockett, E. J.—

Davis, Chas. J —Fox Movietone, London.
Draper, Lauran—Sierra Pictures.
Daniels, Wm. H.—M.-G.-M.
Davis, Harry—Fine Arts
De Vinna, Clyde—M.-G.-M.
DeGrasse, Robert—F. B. O
Diamond, James—Metropolitan.
Dored, John—Paramount News, Riga Latvia.
Dubray, Jas. A.—
Du Par, E. B.—Warner's Vitaphone
Du Pont, Max—
Deau, Faxon M.—

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Esllck, Le Roy—F. B. O.
Evans, Ferry—
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Fahan, Max—M.-G.-M.
Forbes, Harry W.
Falsey, George Jr.
Fryar, Richard—
Fischbeck, R. A —Lasky.
Fisher, Ross G —

Gerrard, Henry William—Lasky.
Gheller, Edward—
Gerstad, Merritt B.—M.-G.-M.
Gosden, Alfred G.—
Gilks, Alfred—Lasky.
Gray, King D.—
Gulssart, Rene—Fox. Elstree Studio, England.
Good, Frank B —Fox Studio.
Griffin, Walter L.—David Hartford Productions.
Gaudio, Gaetano—Caddo Productions—Met. Studio.

Hallenberger, Harry—Lasky.
Harris, Emil—
Hesler, Frank B.—
Kilburn, Percy—M.-G.-M.
Hunt, Roy—Lasky.
Ryer, William C.—Educational.
Horne, Pliny—
Haller, Ernest—Robt. Kaus Productions, Hollywood.

June, Ray—Fine Arts Studio.
Jackman, Floyd—Warner Bros.
Jackman, Fred W.—Technical Director, Warner Bros.
Jackson, H. A.—
Jennings, J. D.—Buster Keaton.

Kershner, Geu—
Kesson, Dave—United Artists.
Kesson, Frank A.—
Kirkpatrick, H. J.—Universal.
Klaffkl, Roy H.—
Kornmann, Anthony—Universal.
Kull, Jacob—Universal.
Koenekamp, H F —Warner Bros.
Kurrle, Robt. E.—First National.

Lindon, Eddie—Universal.
Lloyd, Art—Hal Roach.
Longenecker, Bert—Artclass Prod.
Lyons, Chester—Fox
Lyons, Edgar—Christie.
Lyons, Reginald—
Lundin, Walter—Harold Lloyd, Metropolitan.
Lockwood, J. R.—
Marley, J. Peverel—De Mille.
Mackenzie, Jack—Douglas McLean, Lasky.
Marsh, Oliver—M.-G.-M.
Marshall, Wm. C —Lasky.
Martin, H. Kinley, Lasky.
Metcalf, John J.—M.-G.-M.
Miller, Arthur—De Mille.
Miller, Ernest W.—Chadwick Studio.
Miller, Virgil E.—F. B. O.
Mohr, Hal—Warners.
McClung, Hugh G.—
McDonnell, Claude—London, England
McGill, Barney.
MacWilliams, Glen—Fox.
Meehan, Geo.—Fox.
Morgan, Ira H.—James Cruze, Metropolitan.
Musuraca, N.—F. B O.
Milner, Victor—Lasky.
Murray, James V.—Lasky.
McManigal, E. L.—
Newhard, Robt.—
Neumann, Harry C.—Universal.
Norton, Stephen S.—
Oswald, H. M —

O'Connell, L. Wm.—Fox.
Powers, Len—Hal Roach.
Phillips, Alex—Christie.
Perry, Paul P.—
Perry, Harry—Caddo Prod.—Met. Studio.
Palmer, Ernest—Fox.
Pollte, Sol—First National.
Reeves, Arthur—
Reynolds, Ben F.—
Rise, Irving O.—M.-G.-M.
Rosson, Hal—
Roos, Len H.—c/o Pathe Review, Sidney, Australia.
Rose, Jackson, J.—Universal.
Rosher, Chas.—Mary Pickford-U. A.
Ries, Park J.—
Scheurich, Victor—
Schoenbaum, Chas.—Lasky.
Sckoltz, Abe—
Shamroy, Leon—Fine Arts Studio.
Smith, Ernest F.—
Smith, Harold L.—
Smith, Leonard—Educational.
Stengler, Mack—F. B. O.
Stevens, Geo.—Hal Roach.
Stevens, Jack—Rickard Talmadge, Universal.
Struss, Karl—United Artists-D. W. Griffith.
Stamar, John—Universal.
Stumar, Chas.—Universal.
Sharp, Henry—M.-G.-M.
Schneiderman, Geo.—Fox.
Scott, Homer A.
Seitz, John F.—Corrine Griffith, First Nat.
Snyder, Edward J.—
Thompson, W. C.—
Tannura, Philip—F. B. O.
Tetzlaff, Ted—Chadwick.
Tover, Leo—United Artists.
Todd, Arthur L.—Universal.
Turner, J. Robert—Educational.
Tuers, Billy—
Tolhurst, Louis H.—Microscopic Pictures.
Valentine, J. A.—Fox Studio.
Van Enger, Charles J.—Fox.
Van Trees, Jas. G.—First National.
Van Buren, Ned—Eastman Kodak, Hollywood.
Vogel, Paul E.—M.-G.-M.
Wagner, Blake—
Wagner, Sidney C.—Fox.
Walker, Earle F.—
Walker, Joseph—Columbia.
Walker, Vernon L.—Sennett.
Warren, Dwight W.—
Whalen, John P.—
Wheeler, Wm.—Christie Studio.
White Ben—
Williams, Wm. N.—Sennett.
Widen, Carl—Tiffany.
Wrigley, Dewey—Metropolitan.
Wyckoff, Alvin—Caddo Productions, Metro Studio.
Wells, Conrad—Warners Vitaphone Preds.
Wenstrom, Harold—
Whitman, Philip H.—Directing Sennett Studio
Wilky, L. Guy—Fox Studio.
Warrenton, Gilbert—Fox Studio.
Young, Jack R.—M.-G.-M.
Zucher, Frank C.—New York

HONORARY MEMBERS

Edison, Thomas A., Orange, N. J.
Eastman, George, Rochester, N. Y.
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SPECIAL PROCESS AND TRICK CINEMATOGRAPHERS

Baker, Friend—
Binger, R. O.—M.-G.-M.
Cully, Russell—Lasky.
Knechtel, Alvin V.—First National.
Emlay, Earl—
Fulton, J. Phipps—Universal.
Pollock, Gordon B.—Lasky.
Manames, Ray—M.-G.-M.
Cohen, Eddie—
Edouart, Farciot—Lasky.
Flora, Rolla—Lasky.
Lipstein, Harold—M.-G.-M.
Pomeroy, Roy—Lasky.
Roberts, Oren W.—Lasky.
Shearer, Douglas G.—M.-G.-M.
Stull, William—Stull Prod.
Schlosskow, Paul—M.-C.-M.
Smith, Arthur—Lasky.
Smith, Jack—Bangkok, Siam.
Williams, Frank D.—Special Process

AKELEY CINEMATOGRAPHERS

Bennett, Gay M.—
Blackstone, Cliff—Lasky.
De Vol, Norman—Fox.
Dyer, Elmer G.—
Fetters, G. Curtis—Fox.
Galesio, Leonard T.—
Greiner, A. Leroy.
Hickson, John T.—
Hoke, Ira B.—
Larabee, Nelson—Warner Bros.
Marshall, Chas. A.—M.-G.-M.
Marzorati, Harold J.—M.-G.-M.
Masco, Harry G.—
Novak, Jos. J.—
Olsen, R. E.—
Ramsey, Ray Lloyd—
Rand, William—Lasky.
Roberts, Josiah—M.-G.-M.
Shackelford, J. B.—Lasky.
Siekner, William—
Stout, Arckie J.—Lasky.
Steene, E. Burton—Caddo Pred.—Met. Studio.

NEWS CINEMATOGRAPHERS

Grimes, William H.—M.-G.-M.
Parriah, Fred—Fox, Colorado Springs.
Steub, Ralph B.—Specialties, Reels.

STILL PHOTOGRAPHERS

Alexander, Kenneth—United Artists—D. W. Griffith.
Archer, Fred R.—De Mille.
Fryer, Elmer—Warner Bros.
Kahle, Alexander—
Manumit, Clifford—M.-G.-M.
Parker, Robt. M.—
Rickee, Eugene Robert—Lasky.
Bowley, Lee—Lasky.
Stepp, W. B.—
Sigurdson, Oliver—
Thomas, Wm. E.—De Mille.
Van Roseem, Walter J.—James Cruze, Inc., Met. Studio.

SECOND CINEMATOGRAPHERS

Bader, Walter S.—M.-G.-M.
Bauder, Steve L.—M.-G.-M.
Baxter, George—De Mille.
Bennett, Monroe—
Berradale, O. H.—Lasky.
Cheney, George—United Artists.
Chawning, Wallace D.—M.-G.-M.
Cunliffe, Donald—Universal.
Davis, Leland E.—
Doolittle, Jas. N.—First National.
Drought, Jas B.—Universal.
Dunn, Linwood G.—Metropolitan Studios.
Dyer, Edwin L.—M. P. A. Studio, New Orleans.
Fitzgerald, Edward—M.-G.-M.
Giridlian, Jas. N.—F. B. O.
Greene, Al M.—
Greenhalgh, Jack—F. B. O.
Ouffy, O. Buenett—De Mille.
Haas, Walter—
Herten, Charles—New York.
Head, Gordon G.—
Hendrickson, Fred S.—Lasky.
Huggins, L. Owens—
Julian, Mac—
Keyes, Donald B.—First National.
Kealey, Joseph—
Landrigan, John S.—Lasky.
Lang, Charles Bryant—Lasky.
Longet, Gaston—F. B. O.
Lanning, Reggie—Lasky.
La Shelle, Joe—
Laszlo, Ernest—
Linden, Carly—
Martin, Robt. G.—F. B. O. Ralph Ince Prod.
Marta, Jack A.—Fox.
Merland, Harry—Lasky.
Mole, Pierre M.—M.-G.-M.
MacLean, Gordon—M.-G.-M.
Nagle, Geo. G.—
Pahle, Ted—
Palmer, Rohl—M.-G.-M.
Parsons, Harry—
Pittack, R. W.—Lasky.
Planck, Robt. H.—Columbia.
Pyle, Edwin L.—
Ragan, David—Fox.
Ray, Bernard B.—
Redman, Frank—DeMille.
Reed, Arthur—M.-G.-M.
Rees, Wm. A.—Fine Arts.
Schmitz, John J.—
Schopp, Herman—
Shepek, John, Jr.—Educational.
Silver, John—
Smith, Jean G.—De Mille.
Stine, Harold E.—De Mille.
Tappenbeck, Hetto—Fox.
Terzo, Fred—Universal.
Thompson, John—
Unholz, George—Sennett.
Van Dyke, Herbert—M.-G.-M.
Van Enger, Willard—Warner Bros. Vitaphone.
Waguar, Rohl—First National.
Walters, Joseph J.—F. B. O.
Westerberg, Fred—De Mille.
Williams, Alfred E.—Lasky.
Rex, Wimpy—Lasky.
Witzel, E. L.—Universal.

At The British Hollywood

Something About Elstree, the New Film Production Center Now Under Construction

(Contributed)



Above—One of the sets at Elstree, England, the new British Hollywood, now building. At left —Rene Guissart, A. S. C., with Betty Balfour, English Star.

British International Pictures, Ltd., since its inception in April of 1927, has made immense strides. With studios at Elstree, approximately twelve miles outside London, this producing unit promises soon to have its productions on the kinematograph screens of the world. Its administrative staff is an exceptionally competent one, comprising as it does, men, who through years of experience, have assimilated a profound knowledge of the essentials that constitute successful pictures.

John Maxwell, Chairman and Managing Director, is undoubtedly one of the most respected and honored men in the British Film Industry. Commencing as an exhibitor, he soon acquired a circuit of halls, then turning his attention to the renting side, started Wardour Films, Ltd., and now having journeyed into the world of film production, he is the moving light in one of the greatest of British producing companies. Mr. M. A. Dent, the present General Manager of Wardour Films, is a man who is regarded by the entire industry as being one of the most astute and competent in the business. J. A. Thorpe, late General Manager for Wardour and now General Manager for British International, is another man of very wide experience. The remaining two directors are Sir Clement Kinloch-Cooke, Bart., K. B. E., M. P., and J. Denny Bright, both of whom are known as exceedingly capable and successful business men.

The studio personnel includes directors and stars whose names are world famous. The directors include Alfred Hitchcock, acknowledged as one of the finest British directors, E. A. Dupont, the famous director of "Vaudeville," Arthur Maude, director of many fine American pictures and winner of the famous Riesenfeld Medal for the finest picture produced in twelve months, and Thomas Bentley, one of the most experienced of film directors. The stars include Syd Chaplin, Betty Balfour, Jameson Thomas, Jack Buchanan, Lilian Hall-Davis, Carl Brisson, Warwick Ward, Gibb McLaughlin, Estelle Brody, Dorothy Boyd, Eve Gray, Gordon Harker, Forrester Harvey, Clifford McLaglan, Maria Corda, Monty Banks and many others. It would indeed be difficult to find a greater assemblage of proven talent and box-office value. The productions completed, at present being "shot," and soon to be started, are all of outstanding merit. The first one, "The Ring," which was produced by Alfred Hitchcock, was hailed by the critics throughout the country as being the best picture ever made in this country.

At its premiere presentation in the West End of London it broke all records at the Astoria.

The second picture to be shown was "Poppies of Flanders," directed by Arthur Mauds, which was also the subject of a stream of sulogistic notices in the newspapers. The third, "The Silver Lining," was described by one critic as "Yet another successful British film."

The last pictures under production in the Elstree Studios were "The Farmer's Wife," adapted from Eden Phillpot's famous play, and directed by Alfred Hitchcock; "A Little Bit of Fluff," in which Syd Chaplin and Betty Balfour are co-starring; "Moulin Rouge," directed by E. A. Dupont, and starring Olga Tschechowa, and "Toni," directed by Arthur Maude, and starring Jack Buchanan and Dorothy Boyd.

Future productions include "Champagne," in which Betty Balfour will be the star, and which will be directed by Alfred Hitchcock; "Tommy Atkins," directed by Norman Walker, who is taking his company to Egypt for "exteriors." His cameraman is Rene Guissart, A. S. C., who "shot" "A Little Bit of Fluff" and many other excellent stories, including "Ben Hur."

In every case British International Pictures are choosing their stories and producing their films in such a way that their appeal will be as international as possible, and will be just as acceptable on every screen of the world. Every endeavor is being made to maintain the highest possible standard in production, and neither expense nor trouble is being spared in an endeavor to turn out films that will definitely and unquestionably place British-produced films on the forefront of the world's market.

The United Kingdom distribution of the productions, together with the control of foreign rights is in the hands of Wardour Films, Ltd., which has recently merged with British International, and now operates under one directorate. Wardour Films will concentrate mainly on these British productions in the future, and following a certain number of foreign pictures already under contract, have decided thereafter to limit themselves to acquiring only foreign super-productions of outstanding character, and not tie themselves to any set output. Thus the high standard of British International productions will be backed up by the equally efficient sales organization of Wardour Films, Ltd.

Firnatone

As the result of contracts recently completed by the Victor Talking Machine Company and First National Pictures the smallest motion picture theatres throughout the country will soon be able to present their films with musical accompaniments as elaborate as those presented in the greatest metropolitan theatres. The Victor Company will arrange and record for First National musical scores synchronized with that company's pictures. Both Victor and First National are licenses under patents of Electrical Research Products, a subsidiary of the Western Electric Company, and the synchronizations will be under these patents. The product will be known as Firnatone.

At present and since the inauguration of synchronized pictures the Victor Company has made matrices and pressed records for Vitaphone, owned by Warner Brothers, and have collaborated with them in recording. Under the new arrangement with First National the entire musical accompaniment of the pictures will be done by Victor experts, from the composition and arrangement of the score, through its synchronized recording and the manufacturing of the records.

Victor's contracts with First National are not exclusive since Victor's arrangements with Electrical Research Products permits them to make and record scores synchronized with films for any motion picture company.

Karl Struss, A. S. C., has been loaned to First National to do the still work on "In the Night Watch," directed by Alexander Korda. Mr. Struss is a member of the Welfare Committee of the A. S. C., and one of the leading pictorial artists of America. Hal Mohr, A. S. C., has resigned from Warner Brothers to take up cinematographic work elsewhere.

A New Camera

Bell & Howell Announce Lower Priced Pocket Size Movie Camera

The Bell & Howell Company, widely known among amateur movie makers as the manufacturers of Filmo motion picture cameras, projectors, and accessories, have announced a new amateur model known as "Filmo 75" which sells at a price one-third lower than Filmo 70, the original Filmo.

This new model is a beautiful piece of workmanship. A more casual inspection confirms the manufacturer's statement that it was **not** built to sell at a price. Lightness and compactness are features which recommend the new Filmo camera for general field, sport, vacation and outing use. Slim and flat, it may be slipped into a coat pocket between shots. Its weight is only 3½ pounds, and its size is 1⅝" x 4" x 8¾". The spy-glass view-finder, a feature of all B. & H. amateur cameras, is concealed within the frame. The winding key, permanently attached, folds flat against the side of the finder, and has a ratchet device permitting winding like a watch. Only one hand is needed to hold and operate Filmo 75. The starting button is located on the front plate beneath the lens, where the index finger naturally falls when the camera is held to the eye.



The new Filmo is beautifully finished with a filigreed wear-proof metallic covering, available in a choice of three colors—Silver, Birch, Ebony Black, and Walnut Brown.

Regular equipment includes a sturdy, genuine pebbled leather carrying case with suitcase style handle and shoulder strap, 20 mm. F 3.5 Taylor-Hobson Cooke anastigmat universal focus lens, and a carefully calculated exposure chart.

Other details include a safety lock on the starting lever, instant interchangeability of lenses, viewfinder adjustable to the angle of vision of every alternative lens—without need for auxiliary matched viewfinder lenses, an upright viewfinder image as seen through binoculars, elimination of the necessity of lubrication for two years, operating speed of 16 exposures per second, capacity of 100 feet 16 mm. film, twin spring units of highest grade imported Swedish steel with driving capacity of 20 feet of film per winding, extremely simple daylight loading, shuttle film movement of utmost precision of registration, aperture and gate of stainless steel—mirror polished, easy removal of gate for cleaning, accurate film footage dial, and ample protection of all working parts.

The new Filmo 75 is not in any way to replace the original Filmo 70, which contains a number of features not found on Filmo 75 and which will be produced in the future as in the past. The Bell & Howell Company ideal is to keep Filmo 70 the most flexible and highly perfected movie camera made at any price for amateur use, adaptable for all conditions of light, speed, and distance. Filmo 75 is designed to fill a definitely felt demand for a quality camera at a lower price—a demand which comes from those who do not feel a need for all the features offered in the original Filmo.

Charles Boyle, member of the Board of Governors of the A. S. C., is getting his passport for a journey to Asiatic points centering about India. He expects to be away from Hollywood about six months. During his sojourn in the South Seas Mr. Boyle will drop in on Len Roos, the A. S. C.'s wandering boy away off in Australia.

Officers Installed

On the night of Monday, April 30th, the installation of the newly elected Board of Governors and officers of the American Society of Cinematographers was held at the Hollywood-Franklin Hotel, 6141 Franklin Avenue, Hollywood.

Daniel B. Clark, who during the past two years has been president of the A. S. C., acted as installing officer and conducted the ceremonies with grace and dignity, charging each officer with his duties and paying a tribute to the Board of Governors and officers who served with him during the strenuous two years just closed.

The attendance was large and the new officers and Board were given an enthusiastic reception.

After the formal address of Mr. Clark, speeches were made by President John W. Boyle, Vice-Presidents Rosher, Steene and Morgan, Treasurer George Schneiderman (serving his third term) and Secretary Joseph Dubray.

President Boyle, after a graceful speech of felicitation in appreciation of the retiring president's services to the A. S. C., presented him with a beautiful ostrich-hide billfold, which token of regard quite overcame Mr. Clark.

Karl Struss, reporting for the Special Committee on Code of Ethics, explained the code as at present drawn and presented it to the Board of Governors for consideration.

Joe A. Dubray, the new secretary, spoke interestingly of his recent trip through the East and to the P. A. of A. convention at Louisville, Kentucky, as ambassador of good-will, together with Charles Rosher, from the American Society of Cinematographers to our brothers of the still camera. The details of this interesting trip of Messrs. Dubray and Rosher were told in THE AMERICAN CINEMATOGRAPHER for May.

After the ceremonies of installation a buffet luncheon was served in the Castle Green Cafe of the Hollywood-Franklin Hotel.

President Boyle announced Committees for the ensuing year as follows:

Welfare Committee—Daniel B. Clark, Chairman; Gaetano Gaudio, Karl Struss, E. Burton Steene, L. Guy Wilky and Charles Rosher.

Public Relations Committee—Hal Mohr, Chairman; Arthur Edeson, Gilbert Warrenton, Georges Benoit, H. T. Cowling, John Seitz, Glen MacWilliams.

Research and Educational Committee—Joe. A. Dubray, Chairman; Victor Milner, Farciot Edouart, Frank B. Good, Arthur Beeves, Ira Hoke, George Meehan, Douglas Shearer.

Production Committee—Dan B. Clark, Chairman; Fred Jackman, James Van Trees, Gaetano Gaudio, Homer Scott.

Membership Committee—L. Guy Wilky, Chairman; Wm. C. Thompson, King Gray.

Social and Entertainment Committee—George Schneiderman, Chairman; Charles Boyle, Ira Morgan.

S. M. P. E. Pacific Coast Section

On the night of Thursday, May 3rd, thirty-five of the sixty members of the Pacific Coast Section of the S. M. P. E. gathered at a dinner meeting in the rooms of the Roosevelt Hotel, Hollywood.

This was the first meeting of this first branch of the Society, which has contributed so much to the advancement of the cinematographic art.

By-Laws of the Section were voted upon and the future schedule of business was decided. This Section is composed of the most prominent technicians of the motion picture industry residing on the West Coast, and promises to be one of the most active and essential organizations devoting time and energy to the betterment of motion pictures.

Endorsed By Men Who Know---And Can Buy The Best



DeVry 35 mm. camera is endorsed by Hollywood's most experienced cameramen, directors and stars. Cecil B. DeMille says, "The DeVry has always given satisfaction in our studio."

This camera, which is acclaimed by many to be the finest of all portable movie cameras, holds 100 feet of 35 mm. film, has three view finders, bayonet interchangeable lens, and counterbalanced spring motor. Cameramen like it because the pictures it takes are clear, sharp and full of life. The powerful spring never fails, and it never jams, making it peculiarly valuable for difficult shots.
No wonder this DeVry camera, at the amazing low price of $150.00 is a choice of many movie-wise men and women. Movie stars and others find it the ideal camera for use in taking pictures of their families and friends.

Let us send you our free literature on amateur movie making. Write to the DeVry corporation, Dept. 6-GA, 1111 Center Street, Chicago, Illinois.



DeVry

Shooting the Split Second

The Camera Used in Athletics Establishes a Fine Reputation for Veracity

By Fred Westerberg, *A. S. C.*

[*At the A. A. U. meeting at Pomona College, Claremont, Saturday, May 12th, Mr. Westerberg made additional tests, this time using two watches—one watch running continuously and one stop watch in the hands of a timer, to be started by hand at the sound of the starter's gun.*



Fred Westerberg, A. S. C.

Mr. Westerberg's first set up was at the start of a race. The first man away delayed 5/25 of a second after the gun; the rest of the field 6/25. The stop watch was 5/25 of a second behind the gun.

In the second race, the 120-yard hurdles, Mr. Westerberg set up at the finish line. Here the camera showed the stop watch to be 13/25th of a second behind the gun.

In the 220-yard dash, shooting from a set-up at a finish, the camera showed the stop watch to be 12/25th of a second behind the gun.

Mr. Westerberg will continue his interesting experiments at other athletic meets this summer—Editor's Note.]

The motion picture camera has been used extensively in photographing athletes in order to study their movements in detail. By the simple expedient of photographing a watch at the same time the camera becomes a useful instrument for timing as well. Accuracy to the twenty-fifth, sixtieth or one-hundredth part of a second are all possible, but a standard of one twenty-fifth of a second seemed to be the most practical.

Here is how it is done:

Focus a three inch lens at infinity, mount a watch in front of the lens so that it covers about one-half of the picture, bring the watch into focus with an auxiliary lens, but in such a way that it does not interfere with the view past the watch and you are ready to shoot a race and the watch simultaneously. The watch shows the time to the nearest one-fifth of a second. The six, seven or eight pictures that are obtained during each interval of one-fifth second, if the cranking speed is increased, makes it possible to compute the time to the nearest twenty-fifth of a second.

Set up the camera at the finish line, shooting both start and finish from that position. The three inch lens makes the figures large enough to study even at one hundred yards. The smoke from the gun is of course very easily seen on the film.

It is surprising how long it takes for a runner to respond to the gun. Some high school runners come to life as soon as three twenty-fifths of a second after the smoke from the gun can be seen, but college men take four to five twenty-fifths. Tests have still to be made on how long it takes the timers to start their watches.

The finish is often very close but that does not prevent the camera from analyzing each runner's finish and getting his time. The results obtained in the hundred yard dash in a recent high school meet illustrate the ability of the camera in this respect. The official time for the winner was 9 4/5 seconds. The following results were obtained with the camera:

First place	9 19/25 seconds
Second place	9 24/25 seconds
Third place	.10 2/25 seconds
Fourth place	10 4/25 seconds
Fifth place	.10 4/25 seconds
Sixth and Seventh place	10 6/25 seconds
Eighth place	10 9/25 seconds

The fifth man started three twenty-fifths of a second behind the leaders thereby losing about four feet at the outset. His actual running time was the same as the third place man's. One of the men who tied for sixth place was given fifth place by the judges, but the film shows that he lost fifth place at the very end by throwing up his arms and otherwise giving up momentum.

I have photographed three 9 4/5 second races this year. In reality no two were alike. The three times were:

First race	9 23/25 seconds
Second race	9 19/25 seconds
Third race	9 21/25 seconds

The difference between the fastest and the slowest race was over four feet. Such refinement in timing is due to the ability of the camera to break up each fifth of a second and give it a beginning, a middle and an end, instead of it being just a point of time.

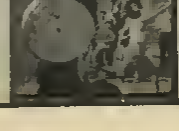
The timing of races with a camera in conjunction with a watch makes possible not only more accurate timing of championship races but makes record breaking performances by smaller margins possible.

A permanent record is afforded that makes it possible for any national or international body to satisfy themselves as to the validity of a new mark. The camera has been known to flatter when expertly handled but it still has an enviable reputation for veracity.



Close-up of finish showing runner breaking tape and watch recording time.

SHOOTING THE SPLIT SECOND

	RECORD OF START	WATCH READING -	FILM READING -	READINGS IN 1/25THS	ELAPSED TIME -		RECORD OF FINISH	WATCH READING -	FILM READING -	READINGS IN 1/25THS	ELAPSED TIME -
			5/35	3.7/25	-				7/40	4.4/25	
			6/35	4.2/25	-	FINISH (1)		57" 1/5	8/40	5/25	9"-21/25
GUN		47" 1/5	7/35	5/25	-				9/40	5.7/25	
			8/35	5.8/25	-				10/40	6.3/25	
			9/35	6.6/25	-				11/40	6.9/25	
			10/35	7.3/25	-				12/40	7.5/25	
			11/35	8/25	-				13/40	8.2/25	
			12/35	8.7/25	-				14/40	8.8/25	
START			13/35	9.2/25	0				15/40	9.4/25	
FIRST RESPONSE		47" 2/5	14/35	10/25	1/25	(2) PLACE		57" 2/5	16/40	10/25	10"-1/25
			15/35	10.8/25	2/25				17/40	10.7/25	

Movie Make-Up

Mr Factor Tells of the Purity of Materials and Destroys The Myth of Poison in Make-Up

By Max Factor

In bringing to a close my series of three articles on the subject of make-up, I believe it only fitting to write something relative to the composition and purity of make-up preparations.

No doubt the reader has heard it said that make-up or perhaps a certain brand of make-up makes the face break out in pimples, and some even go so far as to say that they have been poisoned by it. Needless to say such reports tend to harm the entire art of make-up and destroy all the confidence the profession has developed in the preparation.



Max Factor

Having heard complaints of this kind, we have gone into the matter very thoroughly; in fact, as thoroughly as it is possible. We have analyzed every ingredient and have gone so far as to call upon the manufacturers of each and every raw material, asking that they tell us of their process of manufacture. We also took the matter up with the best known medical men who were authorities on the skin and its care.

After making this thorough investigation we discovered enough proof to arriva at the conclusion that make-up preparations and cosmetics could not possibly injure the skin. That is, if they are manufactured by a reputable concern which employs specialists and chemists who are skilled in the manufacture of these products; also, if these products are made in the correct type of laboratory machines. The matter of correct machinery is very important so that the finished product may be in its very finest and smoothest form. It has been proved that many make-up preparations contain ingredients that have a soothing, healing and antiseptic action on the skin.

Grease paint, which is the most extensively used preparation in make-up, is one of these. The most modern type of grease paint now made, and which we manufactured, contains oxide of zinc as its base. Chemists and medical men all agree that this material is non-toxic, antiseptic and its healing qualities are excellent in case of skin disorders. Zinc oxide is the main ingredient and zinc ointment, which is known as one of the best preparations manufactured to allay irritation, soothe, and heal skin troubles. Upon a number of occasions, where difficulty has arisen in skin eruptions, the question arose that it might be from the zinc oxide, but this fear has all been offset by a statement from the United States Public Health Service in which they state that zinc oxide has never been known to cause an injury of any kind to the skin.

Nevertheless, it is true that certain brands of zinc oxide contain a certain percentage of impurities, but this type of oxide is not used by reliable manufacturers. Take in our particular case, we import zinc oxide of the purest and finest quality made, from Europe. It carries a written guarantee that it is free from all poisonous metals or acids, among which are listed—lead, mercury, bismuth and arsenic. It is only the unscrupulous manufacturer or some small concern which does not know the difference that will employ oxides in their preparations.

Having the assurance that zinc oxide is the ideal ingredient to be used as a base for our grease paint, we will now go into the oils and waxes which are, also, part of a grease paint compound. We use only the purest and finest oils and waxes that can be purchased. These products are absolutely neutral to the skin, and contain neither acids, alkalies or any other type of chemical that will react in any way upon the skin. These oils and waxes are non-absorbent when applied and, therefore, cannot penetrate into the skin and thus block the pores. In fact, the oils and waxes are so pure that they are being used internally and in many food products and medicines.

Grease paint has been blamed more than any other make-up preparation for skin difficulties simply because the majority of people, when thinking of make-up, grease paint comes to mind first. After reading the above facts, it can be plainly seen that it would be impossible for grease paint to be anything but helpful to the skin.

Then comes the item of water, which is necessary in almost all cosmetics. We use distilled water, which is free from all mineral and other impurities.

On the matter of coloring materials, we find that there seems to be a great deal of fear for trouble which might occur. The greatest danger regarding coloring materials, is through lack of knowledge in choosing the proper ones. The man or woman who has a bright idea as to their ability to make cosmetics will be the one most prone to use poor coloring materials. Their usual practice is to purchase their coloring materials from some paint store and mix them with other ingredients in concocting some preparations.

The make-up and cosmetic business is as much of a science and profession as that of medicine; therefore, only those trained and experienced should attempt or be allowed to participate. There is a certain legislation now before Congress as an effort to regulate this particular industry, eliminating those who cannot qualify. Bills have been prepared by the American Medical Association and by United States Senator Royal Copeland, M. D., of New York, which are now being considered by the present Congress. The health of the public must be protected and the only possible way this can be done is by legislating against the use of unsafe materials and amateurishly prepared preparations.

Going back to the question of colors, I wish to state that there are colors which are safe and pure and which contain no poisonous or injurious materials. This being true the price is high, but regardless of this we use them exclusively in all of our preparations, and we might add here that they also carry the written guarantee of the manufacturer as to their purity.

The same applies to face powders, lining colors, lip rouges and all other preparations. There is no reason why they should not be pure and safe, as they can be made so, and with this in mind we do everything humanly possible to manufacture our make-up for the profession as well as for street wear so that it is harmless.

Another statement we have heard is that the preparations themselves may be safe but that the container may have some ingredient in its composition that reacts upon some ingredient in the cosmetic. We wish to say, however, that this is basically untrue inasmuch as investigation proves there is nothing in glass jars, metal caps, paper boxes, tin cans or collapsible tin tubes that are harmful to the skin. The chief objections might be in the tin can and tube; however, the pure tin of which these containers are made is today being universally used in canning food stuffs and are under strict supervision of the Government. There is no lead or other poisonous metal in them and all arguments based on this assertion are erroneous.

There is still another phase of the question of skin troubles that must be considered. Instead of at first or immediately blaming these difficulties upon cosmetics, they should go into the matter carefully from every

angle. If they did this they would find that the eruptions could be traced to something in their diet; such as strawberries, shellfish, excessive eating of sweets or fats, alcoholic drinks, etc. In fact, any faulty diet is liable to upset the stomach and in the majority of cases these internal poisons will be forced out of the system through the pores of the skin and in this way set up a local skin disorder. Another cause of eruptions is too close shaving and shaving more than once a day by many actors. We know of one particular case where the cause was laid to make-up and the physician called upon the case found, upon his examination, that the patient was suffering from an eruption very similar to poison ivy and which was contracted while on location in the mountains.

Knowing that good cosmetics made by reputable concerns are all absolutely harmless to the skin, we would like to ask all fair-minded and sensible persons to bear this in mind and the next time you hear of a complaint of this sort relate to the person the text of this article. Also, the fact that make-up is used by so many persons daily that it is hardly possible that it would be likely to injure the skin. Or better yet, I might ask that you send such persons to me and I will prove conclusively that cosmetics will not injure the skin.

To briefly summarize the three articles that have been published in THE AMERICAN CINEMATOGRAPHER, and which I trust were found interesting to its readers, I will mention Panchromatic make-up again as a worthwhile improvement which is daily finding more and greater success. The use of the natural skin colors will be found beneficial to the cinematographer because he will be better able to determine with his naked eye just how this subject will register upon the screen. Then, too, the useless, gaudy green, blue, violet, pink and purple colors will be put aside and the person will appear both to the eye and on the screen.

The 13 Period Year

Advantages of the 28 Day Month and Calendar Simplification

In 1922 the Chamber of Commerce of the United States and the American Section of the International Chamber of Commerce considered the need for simplifying the calendar, with the result that the International Chamber requested the League of Nations to take up the question. In 1923 the League of Nations appointed a Committee of Inquiry on calendar simplification, which having analyzed 185 proposals from 38 nations, reported at length. The Assembly of the League of Nations, by resolutions dated September 26, 1926, accepted the findings of the Committee of Inquiry, and the Secretary-General of the League of Nations accordingly transmitted to the nations, including the United States, a request for the establishment of National Committees to investigate and report on Calendar Reform.

In the United States the Department of State has conducted a canvass of the various departments to determine the prevailing sentiment with respect to the appointment of a National Committee. This committee, of limited size, is intended to combine official and non-official representation and determine the national opinion on Calendar Simplification.

When the National Committees report, and a preponderant desire for calendar adjustment is shown, it would then become necessary to call an International Conference under the direction of the League of Nations. At such a conference a definite plan, the 12-month or the 13-month plan, should be adopted, the details worked out, and a decision reached regarding the date on which the new calendar should be put into effect.

The agreement on Calendar Simplification at an International Conference would take the form of a treaty which, when ratified by a government, would become the law of the land. This would take care of conversion of dates from the old to the new calendar, maturity dates of contracts, etc. As far as most businesses are concerned the change would not be any greater than now occurs when a complete change is made in the accounting system of a concern. There would be difficulty in making com-

(Continued on Page 33)

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FOREIGN OFFERS CONSIDERED.
John Hill

An Air Pioneer

E. Burton Steene, A. S. C. Has Been Shooting Air Stuff Since the Time of Beachey



One of the most notable of the special features now in process of production and coming up for release in the fall, through United Artists, is "Hell's Angels," an epic of the air, under direction of Mr. Howard Hughes, president of the Caddo organization.

This feature has been in work since last October and has yet some weeks to go before completion for it is designed to be the last word in aerial drama and cinematography. It is an original conception and not in any sense an imitation.

The interest of THE AMERICAN CINEMATOGRAPHER in this production is from the angle that the photography is in the expert hands of A. S. C. members, the chief cinematographer being Mr. Harry Perry, who also directed the photography of "Wings."

Among others of Mr. Perry's staff is E. Burton Steene, second vice-president and member of the Board of Governors of the A. S. C. and probably the pioneer professional aviation cinematographer of the industry in America, where airplane photography originated.

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Mr. Steene is a native of New York, and it was way back in 1911 that he broke into the movies by the route of news editor of the newly inaugurated Pathe's Weekly, it being the first news reel in America. The work being congenial, Mr. Steene decided to see it through and until 1915 he travelled as staff photographer of the Pathe News Reel, doing educational, scientific, travelogue and trick work, after which service he went into the studios to round out his experience in dramatic cinematography.

A little later he mastered the technique of the Akeley camera and has specialized in that work, his employment having been, for the most part, on big feature productions requiring difficult, spectacular and unusual photography, the Akeley being designed for that class of shots.

Mr. Steene's first picture, made from the air was in 1912, the locale being over Lake Ponchartrain, near New Orleans, La. On this occasion he used a Pathe professional camera, the popular studio camera in those days, but Mr. Steene describes his shooting as more or less hit or miss as he could not see through the finder, the mount being too low.

The still herewith will give an excellent idea of both camera and plane used in the first flight of Mr. Steene and will enable the reader to compare them with the wonderful machines of today. The plane was an amphibian, as the still shows, and was piloted by Clyde Horton.

Steene takes no stock in aerial dare-deviltry. He selects his pilots for skill, horse sense and cool headedness in case of emergency. To quote Steene, who is about as easy to interview as the proverbial clam:

"A pilot for a cinematographer photographing from an airplane must also have a sense of camera angles. Many pilots do not make good partners for a cinematographer as they do not seem to have the ability to 'put it there' for the cinematographer. Some of the best pilots of camera ships are or have been photographers themselves, and it can readily be seen that they are more likely to deliver the goods than an ordinary commercial pilot.

"Many scenes have been lost, or retaken at great expense due to misunderstanding of signals and, although quite an elaborate system of signals has been worked out apparently covering every angle, it frequently occurs that something happens that has not been included or even thought of in the arranged system. It is customary for experienced photographing crews, which of course includes pilots of ships to be photographed in the air, and the cameramen to go over the scene thoroughly, drawn as a diagram on a large blackboard. This is a "rehearsal" on the ground. After all are familiar with the maneuver to be photographed all hands go aloft and get the scene first time—PERHAPS, and mostly perhaps. It often takes several trips to get the shot to the satisfaction of all, if there be a great number of planes in the scene and entrances and exits are desired on the screen.

"Of course the fewer ships there are the less difficult it is to get the scene, but with sometimes as many as 20 to 30 airplanes in the clouds at once the job is more than difficult, indeed it is often positively heartbreaking, especially when the cameraman is only waist deep, standing in the cockpit unprotected from the propeller wash and the gale, which is equivalent to standing on the summit of a mountain peak and working in a cyclone of one hundred and twenty miles an hour speed or thereabouts."

During his long and useful career Burton Steene has flown and made motion pictures with many of those flyers who have made aviation history that will endure so long as men go into the air. There was Lincoln Beachey who was killed at the San Francisco fair in 1915; Art Smith, the "Bird Boy," who made the world's record for successive loops at San Francisco, and later lost his life in the U. S. Air Mail Service. There was also Katherine Stinson and many Army and Navy pilots of note both in the U. S. and in foreign countries.

When Brigadier General Charles F. Lee, Royal Air

(Continued on Page 39)

Nearly Six Millions

Building Expansion of 1928 Makes North Hollywood Great Studio Center

For the information of the readers of THE AMERICAN CINEMATOGRAPHER in foreign countries the following data is given on building expansion in the motion picture industry in Hollywood.

This North Hollywood mentioned here is located in the San Fernando Valley, just over Cahuenga Pass, which is the main traffic artery between Hollywood proper and the valley. The term Hollywood as applied to the motion picture production center on the West Coast has now come to mean that entire area in which is included all the production units located in the metropolitan district of Los Angeles.

The data here presented is regarded as anthentic, it having been compiled by the research department of the Security Trust and Savings Bank of Los Angeles. The report sets forth, in part:

A total expenditure of more than $5,500,000 is involved in pending construction projects of the major motion-picture companies of Los Angeles, it was shown recently in a compilation of available figures. The announcements constitute one of the most extensive programs of studio construction ever experienced in the film capital of the world.

Construction of the Mack Sennett motion-picture production plant at Studio City in North Hollywood, completed and ready for occupancy last week, is at present the outstanding studio-construction development of the Los Angeles 1928 program.

The Sennett layout represents an investment of $1,000,000. Fronting on Radford avenue, a short distance from Ventura, the Sennett studio and its outdoor sets cover twenty acres of ground. Eighteen buildings comprize the project.

The plant consists of 150,000 sqnare feet of floor space besides outdoor sets. Buildings contemplated for futura construction will provide close to 58,000 square feet additional.

Two stages already completed provide 44,000 square feet of floor space for the taking of interior scenes, and provision has been made for the building of two additional stages.

With the addition of street paving along the Christie studio frontage at Studio City last week, the Christies are going ahead immediataly with the first unit of construction. Their large acreage will ba inclosed by a decorative Spanish wall, hehind which will he the stages and in front of which will be landscaped parkways to be used in filming street scenes. The entire Christie picture production will eventually be centered at Studio City. The Christie development at Studio City, when finally completed, will represent an investment of $800,000.

The building program of Tec-Art studios, including new stages, administration buildings, general office buildings and dressing-room structures, represents over $600,000. It is helieved that within the coming year additional property improvements will amount close to $1,000,000.

Construction and enlargement work on First National studios at Burbank, calling for an expenditure of more than $500,000 is rapidly nearing completion. In the past six months tha floor space of the studio has been increased 56,000 squara feet, of which 33,000 is contained in new Stage 5.

Completion of a new stage and executive huilding to housa the two Samuel Goldwyn units coming from Culver City to United Artists' stndio is set for this month. The cost of the structures will be approximately $250,000.

The expenditure of $500,000 for new improvementa at tha Fox Hills studio in Wastwood is contamplated hy William Fox studios this year, according to Ben E. Jackson, William Fox studio executive. Two immense stages, now in contemplation, will be completed in time for the full detail of the movietone improvements in the aarly spring and summer.

One of the largest stages in the industry is just nearing completion at the Metro-Goldwyn-Mayer plant at Culver City. It is 310 feet long, 135 feet wide and extends forty feet in height. When completed the total cost will exceed $200,000. This makes the fifteenth enclosed stage on the M.-G.-M. lot.

Enlarging of plant facilities at the Warner Brothars' film studios in Hollywood, at an approximate cost of $250,000, has been ordered hy J. L. Warner, chief executive of the Warner production units, with work to start immediately.

Among the immediata improvementa to he made is a third sound-proof stage for the making of Vitaphone talking pictures at the Sunset-Boulevard stndio. This new phase of film production has grown to such a scale that the two stages originally expectad to suffice for several years were outgrown in less than a year.

Large Program Planned

Tiffany-Stahl Productions, Inc., is carrying through a $750,000 construction program, begun January 1, and expectad to continue until August, according to a statement in behalf of M. H. Hoffman, vice-president and executive head of the company. Tha work includes remodelling, new staga construction and equipment necessitated by plans for extensive production expansion, it was stated.

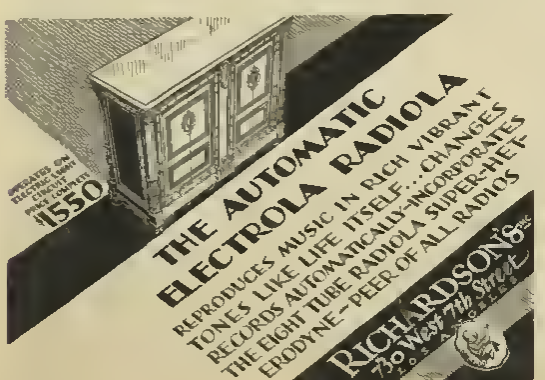
Columbia Pictures Corporation has completed ahout $40,000 worth of work in a construction program of approximately $115,000, it was stated. Two huildings have heen joined with new stage access, thirty more offices have heen added, a new projection room has heen built, stage space has been increased by an area of abont ninety feet by 200, and a stage of approximately 100 feet by 200 and to cost about $75,000 is to he built, according to the statament.

Extensive plans are heing formulated for the davelopment of Universal City Studio into one of the most modern motion-picture plants in the world. No estimata on the cost would be stated.

Carl Laemmle has evolved a major studio plan which calls for numerous improvements, including a number of new huildings, roads and necessary pipe lines.

One of the features is a new stage that will cover more than two acres of ground. The walls of the stage will he removahle and each will be constructed so as to represent various periods of history.

The present stages, of which there are five, will he slightly remodeled to conform with the latest ideas in construction. Heating systams will he installed and new sprinkler and lighting devices will also he built. During the last year Universal has hegun improvements called for by the major-studio plan. A large addition was made to the cutting-room, and several of the streets and roads on the property were resurfaced.



John Dored, northern-most outpost of the A. S. C., was at Spitzbergen to film the arrival of Captain Wilkins on his across the pole flight. When anything important happens anywhere in the world, an A. S. C. man is always on the joh.

More light per watt

BECAUSE of their superior economy National Panchromatic Carbons are being adopted by more and more motion picture studios. They give more photographic light per watt of power than any other light source, except only National White Flame Photographic Carbons, and more visible light per watt than any other light source.

In addition, the light from National Panchromatic Carbons is correctly matched for use with panchromatic films. For shooting colorful scenes, therefore, the combination of panchromatic films and Panchromatic Carbons gives correct tonal reproduction.

With a supply of National White Flame and National Panchromatic Carbons, the motion picture studio has the widest possible range of light, at a minimum cost for electrical energy. Both these carbons are interchangeable in your present arc lamp equipment

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Our A. S. C. Outposts

By LEN ROOS, A. S. C.

(*Continued from Page 14*)

Shops carried on either end of a bamboo pole sell everything imaginable. Restaurants, candy, ice cream, tinsmiths, shoe repairers, hot tea, frozen drinks (sold in round stick form), makers of wooden slippers, etc. Sometimes they will carry the shops to a space on the sidewalk and lay their wares out on display. Hardware, silks, cigarettes (which may he purchased one at a time), medicine, and I even saw a wonderful display of tooth brushes laid out to attract attention. I had a taste of Durien ice cream the other day and it tasted pretty good although I can't say that I have a craving for the fruit as yet.

If sometime you are reclining in a chair at some friend's bungalow or in the hotels and you look ceilingwards and see a number of lizards about six inches long with black, beady eyes racing across the ceiling upside down, don't worry, you haven't "got 'em." These little reptiles are Chechaks and in every place in Java and Malaya you will find them at night. They catch and eat mosquitoes and other insects and are an acquisition to any living quarters. They make a sound like a person clicking his tongue (tch-tch-tch) so if you happen to be telling a story that might ba a little 'tall' and you hear "tch-tch-tch," don't feel that there are unbelievers in the party. A chechak has prohably just caught a mosquito. Sometimes they fight or get excited and forget to hang on to the ceiling. Then there is a loud plop and the chechak hurries across the floor and up the wall, usually leaving a section of bis tail. This does not worry him as he grows another tail in ahout a week. At first it is somewhat annoying to have the things scurrying across the ceiling over one's head, but in a few days you feel at home with them and accept their presence as a matter of course.

As I write this the members of Chettiar (Hinddu), or to give them their own name "Nahtuckotai Nagarathar" are preparing for their annual Taipusam festival. I am told that this is a very interesting three days' ceremony and as I wish to photograph it, I had better do a little preparing myself.

(To Be Continued)

"Cine-Lite"

[A new lighting unit which should be of interest to our readers has recently been placed on the market by Mole-Richardson, Inc It is their Type MR-10, which has been given the trada name "CINE-LITE."—Editor's Note-]

This unit was designed primarily for the amateur motion picture photographer, hnt is also doing good service in commercial and professional studios.

This lamp prodnces a fine generel distribntion of light with a slight concentration at the center, this permits modelling or accentuation nt the main intereet point in the shot heing taken.

The curve of the nluminum refleeted is a compoand paraholoid, and the reflecting surfece is finished te produce a diffused tight body. Thss reflector is mounted on an eluminm boueing which supporte the lamp socket.

The head may he eet to direct beam nt any angle er it may be held in the hand during a still, time exposure and directed at will to obtain a so-called "painted-on" effect.

The stand ie of tube construction and nickle-plated with n black enameled triped base. Vertical adjustment allows a range of from two to eight feet.

The head may be dismennted and the stand folded to compact form for packing or transporting.

The complete nnit with fifteen feet ef condnctor, awitch and plug receptahle, waighs nine pounds.

Carrying cases for both head and stand are provided for those desiring such accessaries.

Questions and Answers

QUESTION—Who are the cameramen who photographed the following pictures: "Sunrise," "Glorious Betsy," "Wings," "The Street Angel?"

ANSWER—"Sunrise" by Charles Rosher and Carl Struss, A. S. C's. "Glorious Betsy" by Hal Mohr, A. S. C. "Wings" by Harry Perry, A. S. C., as chief cinematographer heading a numerous staff of A. S. C.'s. "The Street Angel" by Ernest Palmer, A. S. C.

QUESTION—Panchromatic Film K, has it to be hypersensitized to obtain night effects with a red filter, Wratten No. 25 or 29, in an intense sun?

ANSWER—No. Panchromatic K Film is sufficiently sensitive to obtain good exposures when using the No. 25 or 29 Wratten filters and a sufficient exposure when using the Gamma (No. 72) filter, which gives extreme distortion of color rendition.

Before the advent of Panchromatic K, normal panchromatic films were hypersensitized, when intended to be used in connection with red filters, in order to increase their sensitiveness in the red region of the spectrum. This process involved numerous difficulties of manipulation which are now avoided, due to the greater sensitiveness of both normal and K Panchromatic emulsions.

Circulation That Circulates

E. M. Welsh, Long Island City, reports that he recently saw a copy of THE AMERICAN CINEMATOGRAPHER on Marajo Island, in the Delta of the Amazon River, in Brazil, over two hundred miles in the midst of an almost impenetrable jungle. With subscribers in every country in Europe, North and South America and many countries in the Far East, our magazine may be said to enjoy a wide circulation.



This cartoon by Mr. Kershner illustrates the terrible effect the recent 'Mazda' tests had upon the minds of even our most astute cinematographers. It shows graphically that there is more than one kind of flood and more than one kind of dam.

The Effective Application of Incandescent Lamps for Motion Picture Photography

By R. E. FARNHAM

Engineering Department, National Lamp Works of General Electric Company.

The outstanding advance of the motion picture producing industry during the year just past has been the business approach to every phase of its operation; paralleled by technical developments in film emulsions, both factors have profoundly affected studio lighting practice, and one result has been a very rapid trend toward incandescent lighting. The great popularity of panchromatic film has been due to its ability to correctly register all colors, and the spectral characteristics of the light of the high-efficiency, gas-filled Mazda lamp meet the requirements of the panchromatic emulsions particularly well. The chart of Fig. 1 shows that the emulsion is not as sensitive in the yellow-red as in the violet-blue regions; therefore relatively more light is needed in the yellow-red parts to obtain desired densities for these colors. This is the characteristic energy distribution of the incandescent lamp, as shown by curve "B," and it is evident from the shapes of the two curves that light from the incandescent source particularly meets the requirements of panchromatic film. No filters are used.

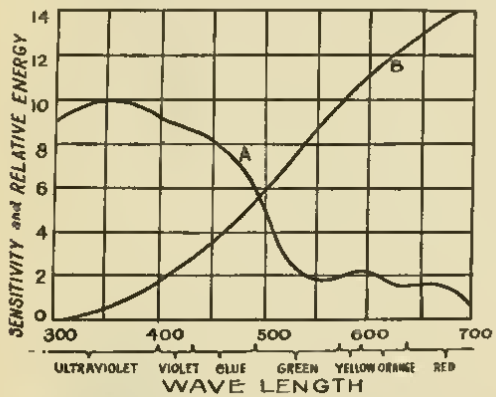


Fig. 1—The light output of the incandescent lamp (Curve B) is greatest in those colors where the panchromatic film (Curve A) is least sensitive.

The studio staffs have found that:

(1) The number of men necessary to handle the lighting equipment of the medium size set is reduced to eight or twelve, where twenty to thirty, or even more, have heretofore been employed.

(2) The lighter weight of the incandescent lamp equipment allows it to be handled more easily and quickly, and it is now possible to photograph more sets in a given time. Likewise, lighter and less expensive overhead supporting structures suffice.

(3) The electrical energy which studios have found necessary to illuminate sets has been reduced to from one-third to one-half of that previously employed; and it is possible to utilize the light from incandescent lamps with high efficiency.

(4) The light is absolutely steady, thus eliminating retakes because of intensity variations.

(5) Since the incandescent lamp operates equally well on alternating or direct current, the heavy investment and operating expense of motor-generator equipment is no longer necessary. Thus the electrical installation can be extended at a fraction of the cost formerly required and a marked saving effected on existing circuits.

In fact, the incandescent lamp has always been favored over other types where it could be applied because of its inherent operating advantages, such as constant color quality, quiet operation, cleanliness, etc. In the studios, the actors do not photograph differently as they move about the set in range of the several lighting units. The incandescent lamp is practically essential when sound is recorded with the picture photography. Delays incident to lamp operation are practically eliminated and periodic airing of the set to remove smoke is no longer necessary. Experience has shown that only a slight amount of make-up is necessary, and there is no danger of the old actors' bug-bear, "Kleig-eye."

Since the lamps may gradually be brought from total darkness to full brilliancy or vice versa, by means of regulators of the induction type or resistors, similar to those used in theater service, effects that could not be obtained heretofore, are made possible. Contrary to the belief of some, the light of the incandescent lamps used for motion picture photography does not follow the cyclic variation of the current when used on alternating current circuits of standard frequencies; thus flicker effects do not result at certain camera shutter speeds.

An outstanding feature of the incandescent lamp is that it lends itself to the design of equipment which will efficiently utilize and direct the light where it is desired. It is strongly recommended that full advantage be taken of these characteristics by using equipment particularly designed for the Mazda lamps which are adapted to this field.

Lighting Requirements

Analysis of the lighting requirements shows that the principal factors involved are (1) intensity, (2) distribution and direction, and (3) color quality. Assuming a satisfactory color quality, the effective use of the light requires a proper balance of intensities throughout the set, together with directional control, which will give artistic photography. Thus the combination of lamps and reflector equipment should not only redirect adequate amounts of light efficiently, but have distributional characteristics which will produce the effects desired.

The intensities should be sufficient to produce desired densities in the darkest parts of the picture, yet for the brightest areas, operate within the latitude of the film emulsion. Otherwise, lack of detail and contrast can be expected. Data on practical working intensities are presented in a later section of the paper.

Photography is a record of contrasts, high-lights and shadows. The placing of the high-lights and shadows is obviously dependent on the location of the lighting units. Their size is dependent on the size of the source, and its distance from the surface, and the character of the sur-

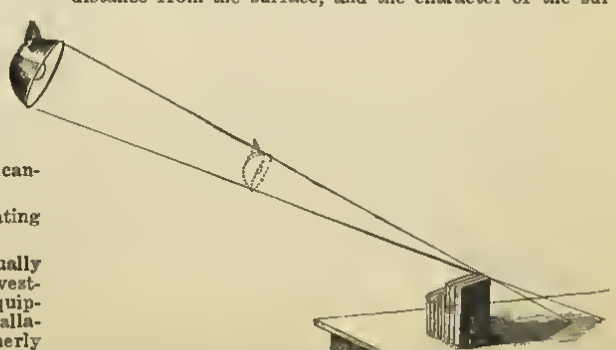


Fig. 2—The sharpness of a shadow depends upon the size and distance of the source.

face. The degree of shadow sharpness depends not only on the size of the source but also on its distance from the surface (see Fig. 2). The size of the lamp reflector and the nature of its surface are therefore important features of equipment design.

For practical consideration, it is convenient to classify the motion picture lighting as general and modelling. The purpose of the general lighting is to provide a ground work illumination which is fairly uniform in intensity throughout the set. It not only illuminates the areas that the modelling lights do not serve, but allows control of shadow density over the entire set. For the more usual cases, the general lighting should not model the actors or create noticeable high lights and shadows; this is the function of the modelling lights which the lighting director employs to create the effects desired.

Because of the higher intensities required and the small areas covered, the modelling units usually are projector types which send light in relatively narrow beams.

General Lighting

The intensities required for general lighting will vary with the nature of the set, the action, and the colors of the properties. An extensive survey conducted in the prominent studios to determine the illumination levels employed in all types of scenes showed that values as low as 200 foot-candles are used for general lighting, and on the other hand 500 foot-candles may be encountered.

Broadside Units. Ordinarily the camera is aimed nearly horizontally and hence the illumination on vertical surfaces is most important. For the smaller sets much of the action usually occurs over areas from 6 to 12 feet deep and the intensities required can be best provided by lighting equipment placed across the front. The lighting units used for this purpose are called broadsides. They should be capable of providing fairly uniform illumination through horizontal and vertical angles of approximately 60 degrees, and the horizontal angle of cut-off be not greater than 90 degrees in order to keep down the

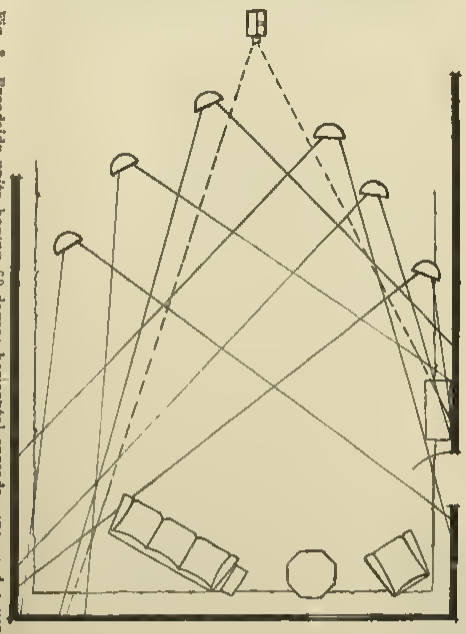


Fig. 3—Broadside units having 60-degree horizontal spreads give good coverage with minimum waste of light.

illumination intensity on the side walls of the set. Fig. 3 shows the areas covered by units giving 60-degree distributions. If the horizontal distribution is much less than 60 degrees, the general illumination of the set either becomes spotty and difficulty is encountered in securing uniformity of the lighting, or a larger number of units are required to gain the desired uniformity. For angles

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greater than 60 degrees, much light is wasted and the side walls of the set are apt to become undesirably bright. Reference to Fig. 4 shows that a 60-degree

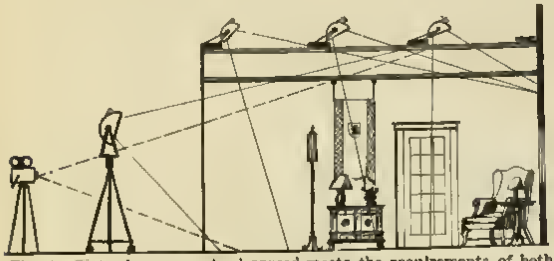


Fig. 4—Sixty degrees vertical spread meets the requirements of both overhead and broadside lighting units.

spread also meets the vertical angular requirements—thus making possible a reflector of symmetrical contour with its attendant higher efficiency and lower cost of manufacture. Sets ranging from a "close up" to one of almost indefinite width have been considered; however, sets 15 to 20 feet wide by 20 to 35 feet in depth have been given special consideration owing to the prevalence of these sizes.

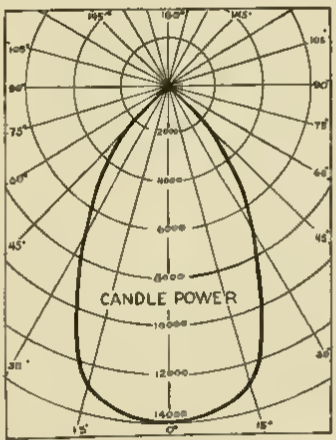


Fig. 5—Desirable candlepower distribution for broadside and overhead equipment.

Fig. 5 is a candle power distribution curve for a broadside lighting unit which meets the requirements. The candle powers at the center of the beam are well maintained to between 25 and 30 degrees from the axis, to improve the uniformity of illumination.

Reflector Design. The contour and nature of the surface of a reflector determines the candlepower distribution which will be obtained with the light source to be employed. Polished metal and mirrored glass, for example reflect light beams as shown in Fig. 6; the angle X which



Fig. 6—Polished metal or plane mirrored glass reflect in definite direction.

the incident rays make with the normal to the surface is always equal to the angle Y. A mat surface, on the other hand, diffuses the light in all directions, regardless of the angle from which it is received, and therefore permits little control (Fig. 7). Porcelain enamel diffuses

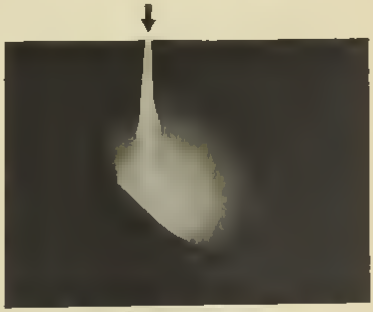


Fig. 7—Reflection from rough-mat surface—light control is lost.

light in this manner. Treated or semi-mat finish aluminum reflects light as shown in Fig. 8; here most of the light

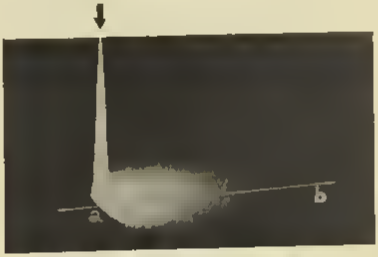


Fig. 8—Reflection from treated aluminum—directional control with slight diffusion.

is reflected in the same general direction ab as though the surface were polished, but with controlled diffusion, giving what is known as spread reflection. Essentially the same effect can be obtained by rippling or otherwise configurating the surface of mirrored glass.

This spread type of reflection is particularly adapted to reflectors for general lighting since most of the light can be sent into desired directions by selection of the proper contour and finish, and the beam striations or source images obtained with a polished or mirrored surface, are avoided.

Fig. 9 shows the contour of a semi-mat aluminum reflector designed for the P-52 bulb lamps to give the beam spread shown in Fig. 5. By proper treatment of the surface, the semi-mat reflection characteristics can be held within close limits.

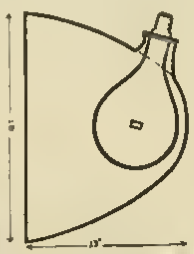


Fig. 9—Contour of reflector to give the candlepower distribution of Fig. 7.

Semi-mat aluminum reflectors for general lighting have the advantages of high efficiency, low first cost and light weight; in practice the surfaces require retreating at periodic intervals to maintain their reflection efficiency unless cover glasses are employed on the units. Configurated surface mirrored glass has high efficiency, greater first cost and

(Continued on Page 34)

The Thirteen Period Year

(Continued from Page 23)

parisons between the months of the new calendar and the corresponding months of the old calendar. An adjustment table, however, would considerably reduce the time necessary for making these computations. All anniversary dates, birthdays and holidays would be changed, but there would be little difficulty in determining the new dates from the adjustment table.

There would be no legal difficulty encountered. All that would be necessary would be an Act of Congress stating that such a calendar would take effect on a certain date, probably two or three years in advance. This Act would include, as a part of it, an adjustment table and would provide that dates on existing bonds, mortgages, leases, contracts, etc., would be automatically changed to the corresponding dates of the new calendar as determined from the adjustment table.

It would, therefore, be unnecessary actually to recall all bonds outstanding and have the old dates erased and the new dates put in; the maturity date under the new calendar would simply be determined by reference to the adjustment table.

The benefits derived by using 13 months of four weeks each, with the Year-Day-Sunday inserted as the 8th day ending each year's last week, will be shared by all classes of society—by those engaged in business affairs, by church authorities, in the professions, by women, by farmers, by school directors, who can equalize educational periods, and others. These benefits may be summarized as follows:

1. All months would be equal, having exactly the same recurring 28 week-days.
2. The day of the week would always indicate the monthly date, and conversely, the monthly date would indicate its week-day name. Both day and date could be recorded on clock and watch dials.
3. The complete four weeks would exactly quarter all months, harmonizing weekly wages and expenses with monthly rent, accounts, etc.
4. Pay-days would recur on the same monthly date, which would facilitate both business and home life.
5. Each week-day would recur on its four fixed monthly dates, thereby making more regular the weekly and monthly work, payments, production, etc.
6. All periods for earning and spending would be either equal to or exact multiples of each other.
7. Holidays and other permanent monthly dates would always occur on the same week-day.
8. Every month-end would coincide with the week-end. Fractions of weeks at month-ends would cease.
9. The month of exactly four weeks would obviate many of the adjustments now necessary between four- and five-week months. All months would be comparable without any adjustments being made for unequal days or unequal number of weeks.
11. All holidays could be placed on Monday with advantage both for industry and for workers.
12. Easter could be fixed, which would be of benefit to churches, to certain industries, and to schools.
13. As there would be 13 monthly settlements during the year instead of 12, there would be a faster turnover in money; the same volume of business could be handled with less money. This would result in considerable saving throughout every country as a whole.
14. There would be a saving of money in printing calendars, and of time in referring to calendars.
15. For women, the 28-day lunar month is Nature's regulating unit, which constantly times their physical periods of 28-days, and the 280-days of developing motherhood. Half of humanity is composed of women, every one of whom will be greatly benefited by the 28 days per month calendar in their personal reckonings of exactly one month and 10 months.
16. Special attention is called to the advantages to industry if all holidays are placed on Monday. Great saving will be effected by having a holiday on Monday instead of the middle of the week. There is even a greater advantage to labor to have this arrangement that gives the worker two or three free days together whenever holidays occur.

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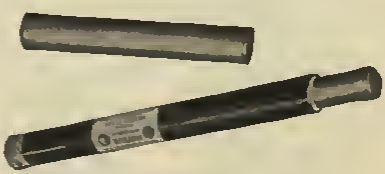
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The Effective Application of Incandescent Lamps for Motion Picture Photography

By R. E. FARNHAM

(Continued from Page 32)

greater weightt; it is subject to mechanical breakage but is readily cleaned by periodic washing.

When it is necessary for the actors to look directly into the units, as is usually the case in close-ups, some form of light diffusing material should be used to shield the brilliant filament from the eyes. It is desirable that this shield should not affect the candlepower distribution appreciably.



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The 1000-watt PS-52 bulb standard Mazda lamps meet the usual requirements for general lighting. On the larger sets or where the higher intensities are required, the 2500-watt PS-52 bulb lamps arranged in the usual manner across the front of a 20-foot width set will give a practically uniform intensity of 250 foot-candles 12 feet back from the front of the set. At 18 feet the intensity is over 100 foot-candles, exclusive of the light received from the overhead general lighting equipment. When 500 or more foot-candles are desired the 2500-watt lamp should be employed.

Overhead Units. For the deeper sets, overhead units are needed to send light to the rear areas that cannot be illuminated satisfactorily by the broadsides. If the light output of the latter were increased sufficiently to provide ample light in the rear, the illumination intensities nearer the front would be undesirably high, so that the modelling lights would make relatively little impression, hence the need of equipment capable of directing light into the rear parts without increasing the illumination at the front. Such units must be capable of supplying higher illumination on vertical than on the horizontal surfaces.

Since the overhead units are placed across the set similarly to the broadsides, we find here also that the 60-degree horizontal and vertical distributions adequately meet the requirements, thus permitting the use of a symmetrical reflector similar in contour to the broadside (See Fig. 4). The overhead units are suspended so that the center of the beam will be directed from about 30 to 45 degrees below the horizontal; such an arrangement gives a relatively high illumination on vertical surfaces as compared to the illumination on horizontal surfaces, with a minimum of wasted light.

Strip Units. Frequently, owing to space limitations, it is necessary to illuminate the set from room corners, or through door-ways, where it is not possible to place the usual broadsides. For this purpose the so-called "strip light" has application. It is generally mounted vertically, quite close to the surfaces to be illuminated, and spread of about 90 degrees is required. Present practice is to place five lamps in a metal trough; this design has the disadvantage of too wide beam spread, especially in planes lengthwise through the unit. Placing individual reflectors behind each lamp, as shown in Fig. 10, greatly increases the amount of light sent in useful directions; 1000-watt PS-52 bulb lamps are used. Switches should be provided to permit turning off any of the lamps of the group and thus control the volume of light. The unit should be capable of being suspended vertically or horizontally above the set.

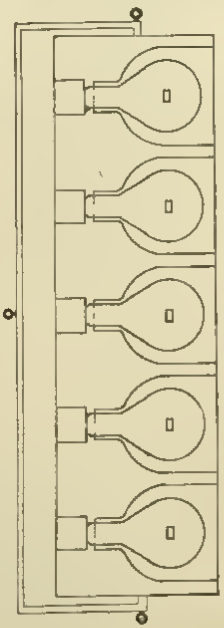


Fig. 10—Individual reflectors for each lamp of the strip sends more light in the useful directions.

Where extreme compactness of lighting equipment is required, as for example lighting behind trees and columns, a strip light employing a semi-circular enameled steel reflector containing five 1000-watt T-20 bulb lamps placed with their axes in the axis of the reflector, has found favor. Light control is sacrificed for compactness. A unit of this shape utilizes the light distribution from the modified monoplane (C-13 A) filament construction of the 1000 watt tubular lamp to good advantage.

It is interesting to note that the two units just described have no counter part among the older illuminants; they are examples of the flexibility of the incandescent lamp for this service, which makes possible new lighting effects.

Modelling Lights

Alone, the general illumination of any motion picture set is not satisfactory, as the lighting of the faces would appear flat and the various actors would seem equally conspicuous from the illumination standpoint. To properly model the features, to give emphasis to certain actors, and to create depth, additional lighting is employed to give much higher intensities over limited areas. To produce distinct high light, intensities ranging from two to four times that of the general illumination are required, although a higher ratio may sometimes be desirable. The modelling units must be capable therefore of producing intensities of from 200 to 1500 foot-candles, over areas ranging from three feet to twelve feet in diameter, at distances from twelve to thirty feet or more. The modelling effect is taken care of almost entirely by medium and high power light projectors. Our study of areas in which modelling lighting is employed for all types of sets shows that the usual requirements for each of these units are given in Table 1.

Desirable characteristics of the modelling lighting equipments are:

1. Continuous range of beam divergence within the limits given in Table 1.
2. No light outside the beam.
3. Reasonable uniformity of intensity over the area illuminated.
4. High efficiency of light utilization.
5. Adjustability from directly downward to 180 degrees upward, and 360 degrees in azimuth.

Since it is necessary to confine the light within relatively narrow spreads, the use of mirrored glass or polished metal reflectors of accurate contour, or refracting lenses, are possible means of meeting the beam spread requirements. The single plano-convex lens, in combination with a spherical mirrored reflector, has the principal disadvantage of low utilization, so that the higher light outputs given in Table 1 are not met with the high wattage lamps available.

Table 1—Requirements for Modelling Lighting Units

FEET	SPOT DIAMETERS-FEET	THROW-FEET	BEAM DIVERGENCE-DEGREES		BEAM LUMENS REQUIRED
Medium Power	3-8	12-20	12 ft. Throw	14-28	1400-42000
			20 ft. Throw	8-17	
High Power	4-12	20-50 and upward	20 ft. Throw	12-33	2500-170,000
			50 ft. Throw	8-14	

Mirrored glass paraholoids can be made to intercept about four times as much light as the lens-reflector combination and this surface has produced the best results thus far obtained for modelling lighting requirements.

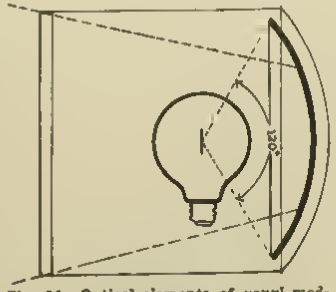
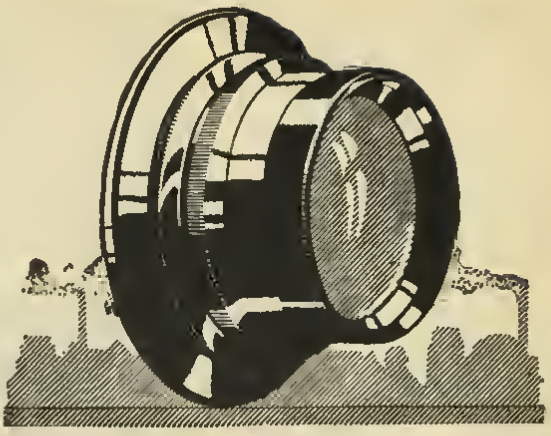


Fig. 11—Optical elements of usual modelling unit. The light from the outer zone of the reflector is wasted when the beam is spread.

The usual design is shown in Fig. 11; provision is made for moving the lamp along the reflector axis to change the beam spread. For the 18 and 24-inch diameter paraboloids with 2000-10,000 watt lamps, beam spreads of from 8 to 12-15 degrees can be obtained before serious

(Continued on Page 37)



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An Erect Image-Finder For the Akeley

By Ira B. Hoke, *A. S. C.*

In the operation of the Akeley panoram camera the cinematographer lines up his scenes through a direct tube magnifier. This magnifier serves not only as a focusing device, but when operated with a secondary lens matched in area with the photographing lens serves also as a view finder. While this finder is absolutely necessary when the telephoto lenses of 12, 15 and 17 inches focal length are in use, an auxiliary finder such as used on the dramatic motion picture camera is of more practical convenience when lenses of wider angle are used.

Until recently, however, no finder was found which readily adapted itself to the Akeley camera. The reason lay in the fact that the Akeley tube finder shows an erect image, with left and right sides correct. Nearly all the old type of finders show inverted images. Their impracticability was immediately recognized by cinematographers when they attempted to switch quickly from the erect image of the Akeley to the inverted image of their finders. The impulse was always to pan in the wrong direction.

On July 9, 1920, Mr. Pliny Horne, A. S. C., veteran Akeley specialist, recognized the need of a secondary finder in a letter written to the Akeley Camera Company. In part, his letter is as follows:

——"Let me suggest one thing, and that is an auxiliary view finder, one that you do not have to put your eye so close to. I do not mean to eliminate the tube, but to add this sort of finder as an extra attachment."

About this time Mr J. B. Shackelford, A. S. C., then in New York, also began experiments with a supplementary view finder. His first finder was along the lines of the Pathe inverted image type. This finder he adapted to the use of different focal length lenses by a series of mats, each giving a specified field of view corresponding to the lens for which it was matched. But like all inverted image finders this was tricky to use, and was not universally successful.

Probably the next type of finder experimented with was the Lubin direct image finder. This finder, while it showed an erect, corrected image lacked the accuracy necessary to successful Akeley panoram scenes.

No further progress seems to have been made until the advent of the Mitchell erect image finder in 1927. This finder, while quite large, has the advantage of showing an image of maximum practical size, erect and fully corrected. The margin limits for the various focal length lenses is determined by a series of metal mats which are inserted just in front of the ground glass after the manner of Westerhouse stops. The erect image feature is accomplished by a series of prisms, compactly arranged in a turret behind the objective. These two features adapt the finder perfectly to the Akeley camera as it is quickly fitted to match different focal length lenses, as well as showing an image corrected as in the Akeley tube magnifier.

The finder is mounted on the Akeley camera in two positions to suit different occasions. The first being directly on top of the camera, the second on the left side at lens level.

When mounted on the top of the camera the finder is in the accepted operating position, its objective in a direct line above the photographing lens. The finder is mounted on a sliding clamp which is movable around the periphery of the camera case, thus making the finder center adjustable to any focal length lens that may be used. This position places the image directly above the central bar of the camera and in the most balanced position for accurate observing.

The adjusting clamp furnished with the finder for attaching to the Mitchell or Bell & Howell cameras serves to secure it in position on the Akeley, and furthermore allows its ready removal when it is desirable to place the finder in the position on the left side of the camera. When mounted on the side of the camera the finder serves admirably where the set-up is so low that, if mounted on top, the finder would interfere with free movement. It is adjusted for different distances and focal lengths precisely as though it were used on either of the other professional cameras.

It often happens that the director wishes to look at the line-up or even watch the action as it is being filmed. When not in actual use on top of the camera the cinematographer may properly mat and correctly center the large finder in the side position so that the intended scene is instantly available for the director's inspection without the inconvenience, both to him and the cinematographer, of peeking through the focusing tube. As the finder in this position is several inches to the left of the magnifying tube the director can easily watch the scene as it is being photographed without interfering in any way with the operator.



Fig. I
The erect image finder mounted on top of camera in operating position, the image being directly above the control bar.



Fig. II
View finder mounted on side of camera in position for director to observe action as it is being photographed.

Chief among the advantages of the new finder is the fact that through its use the Akeley camera becomes the finest machine available to the profession for the photography of scenes from moving vehicles. With the old eyepiece and finder tube a "running shot" was practically impossible with the Akeley because the eye could not be safely held in position. Fitted with the erect image finder the Akeley acknowledges no peer for this type of scene. The gyroscopic control of both pan and tilt movements effectually smooths out the familiar "jumpy" action so distracting to such scenes when photographed with other types of cameras. Every cinematographer who has made running inserts is familiar with the difficulty encountered centering objects when rounding turns at high speed with the pan crank or sidehead camera to work with. This type of shot is negotiated so nicely with the Akeley that often an actual sensation of skidding around turns is conveyed to the screen. Pliability of the Akeley is also demonstrated in the case of running inserts where room to set up the more bulky cameras often hinders efficiency of actual operation. If necessary, the Akeley is instantly removable from its tripod, after which it can be quickly placed either on a baby tripod or flat-base in cramped positions quite inaccessible to the dramatic cameras.

Prior to the advent of the erect image finder running scenes photographed with dramatic cameras were in most cases limited to moderately wide angle lenses, necessitated in order to keep the photographed subjects in the picture. Since the adaptation of this finder to the Akeley camera cinematographers are able to use the three, four and even the six inch lenses with extreme accuracy in photographing close-up action in running shots.

Several years ago the Akeley camera was considered somewhat of a curiosity, but today the director and producer recognize it as the most versatile photographic equipment obtainable, and there are few modern sets that cannot boast one or two fully equipped Akeley specialists.

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The Effective Application of Incandescent Lamps for Motion Picture Photography

By R. E. FARNHAM

(Continued from Page 35)

non-uniformity results; for greater spreads, the center of the spot produced is darker than the outer zones so that some auxiliary means of obtaining uniformity in the larger spreads is needed. Two cover glasses, designed to give additional spreads of 8 and 16 degrees to the beam, in addition to the spreads obtainable with the lamp alone, offer one solution. Built-up or strip glass cover doors minimize breakage. Ground surface gelatin does not have this hazard, but it is difficult to obtain the exact spreads desired, and the light absorption is ordinarily higher. The shadows produced by the beams from these units are moderately defined and are well adapted for most of the requirements; one exception is where the lighting effect involves very sharp edged shadows.

Searchlight cylindrical type housings have been generally employed with the parabolic reflector units, with the result that a considerable amount of light strikes the housing and is lost when the beam is diverged by moving the lamp toward the reflector. The design of Fig. 12 eliminates this loss by a larger housing and cover glass diameter. In addition, the light utilization is increased about 35-40 per cent by the use of a spherical mirrored glass reflector in front of the lamp, which intercepts light emitted toward the set (little of which falls in the beam) and sends it to the main reflector. The spherical mirror is set so that its center of curvature is in the light source. It should intercept at least the maximum solid angle of light utilized by the paraboloid.

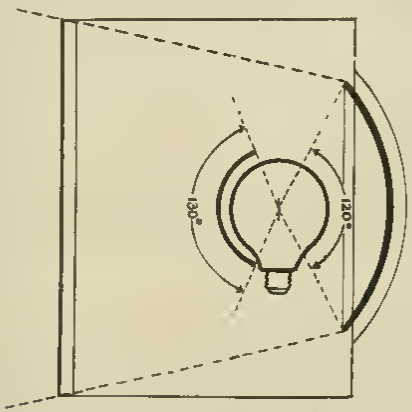


Fig. 12—In this design the front-opening is large enough to pass all of the sprend beam.

Polished metal paraboloids do not offer promising possibilities for good design, due to the practical difficulty of obtaining accurate contours, and of maintaining their reflecting efficiency. This latter objection would be practically eliminated with a chromium surface; however, its reflection efficiency is 25-30 per cent lower than mirrored glass.

Modified paraboloids, or refracting mirrored reflectors, in combination with absorbing or reflecting spill rings, offer possibilities for other designs which may better meet the requirements.

The lamps for these units have concentrated monoplane filaments to give the minimum beam spreads with good uniformity, and higher candle-powers are obtained than with the barrel or C-5 construction. An 18-inch diameter paraboloid with the 2000-watt lamp gives a minimum beam spread of about 8 degrees, and by drawing back the lamp, satisfactory spreads of up to 12-15 degrees can be obtained; cover glasses or screens to give 8-16 degrees additional spread are recommended for the higher values up to 30 degrees. Similiar beam diver-

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TYPE MR-31
FLOOR STRIP LAMP

This lamp is particularly adapted for general foreground lighting and, because of its compactness it can be used to advantage in lighting doorways, windows, recesses and in back of columns, etc.

The globes used are four, 1000-watt P. S. 52, Mazda bulbs, on 110-120 volts A. C. or D. C.

It has adjustable wing reflectors, the head may be set at any angle, elevated if desired or dismounted and suspended in any position.

MOLE-RICHARDSON, INC.
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INVESTIGATE INKIES

gences are obtained with the 5000-datt lamp in the 24-inch unit. Tbe lamps recommended for the sevaral units are as follows:

PARABDLIC REFLECTOR UNIT	REFLECTOR DIAMETER INCHES	LAMP
Medium Power	18	2000 Watt G-48
	24	5000 Watt G-64
High Power	24	(5000 Watt G-64 (10000 Watt G 80
	38	10000 Watt G-80

Equipment Meintenence

Dust or dirt on lamps and reflector surfaces greatly reduces their efficiency; the loss may be as high as 50 per cent. The lamps and lighting units should be cleaned periodically, and the reflector surfaces kept in good condition; the cost of this maintenance is really an investment which is returned in full with big dividends and its importance cannot be over-emphasized.

Mazde Lemps

Table 2 shows the principal types of Mazda lamps applicable to studio photography. The pear-shaped (PS) bulb types are best adapted to the general lighting units and the round (G) bulb lamps to tbe modelling lighting equipments. The tubular bulb lamps are projector types which have special applications in this field because they provide maximum light output for their bulb sizes, with limitations in the burning position.

The new prefocused bese and socket shown in Fig. 13 automatically insure accurate positioning of tbe lamp filament with respect to the reflectors of tbe modelling units. The bayonet construction allows very rapid insertion and removal of the lamps.

Data obtained on the best filament operating temperatures for panchromatic film, indicate that color temperatures of about 3125 degrees K should be used. This corresponds to lamp efficiencies of 24-27 lumens per watt and 200-400 hours life. Operation of ths lamps at lower temperatures and longer lives gives a deficiency in the blue-violet end of the spectrum and too high efficiencies tend to over-emphasize the blue-violet radiation. The PS-bulb lamps are designed for 1000 hours life and therefore a higher temperature is needed, and they should accordingly be operated at 10 volts ahove their labeled value; in other words, on 115-volt circuits, 105-volt lamps should be used. The round bulb types are designed for photographic service and therefore should be burned at their rated voltages.

The PS-bulb types give better life and candlepower maintenance when hurned in the base-up position, and it is important therefore that the lighting units be designed so tbat these lamps will normally operate base up. Tbe round-bulb lamps are made to be operated vertically, base down, or within 45 degrees of base down. The tubular bulk types are for operation vertically, base down, or within 25 degrees of this position. Lamps burned in other than tbe recommended positions usually give sbort life, and poorer candlepower maintenance.

Generel Consideratioes

The lighting of a studio set differs from the usual il-

Watts	Voltage Class	Bulb Shape	Bulb Diameter Inches	Bulb Designation	Light Center Length Inches	Fil. Const.	Overall Length Inches	Base	Burning Position	Service
1000	115	Pear Shape	8 1/8	PS52	8	C7A	13 1/2	Mogul*	Any	General
1000	115	Tubular	2 1/2	T20	4 3/4	C13A	8 1/2	Mogul*	Base Down	General
2500	115	Pear Shape	8 1/2	P252	8	C7A	13 1/2	Mogul*	Any	General
2000	115	Gobular	8	G48	8 1/4	C13	8 1/2	Mogul*	Base Down	Modelling
5000	115	Gobular	8	G64	8	C13	15 1/2	Preag	Base Down	Modelling
10000	115	Gobular	10	G80	12	C13	20	Prong	Base Down	Modelling

*Also available with the mogul prefocased base.

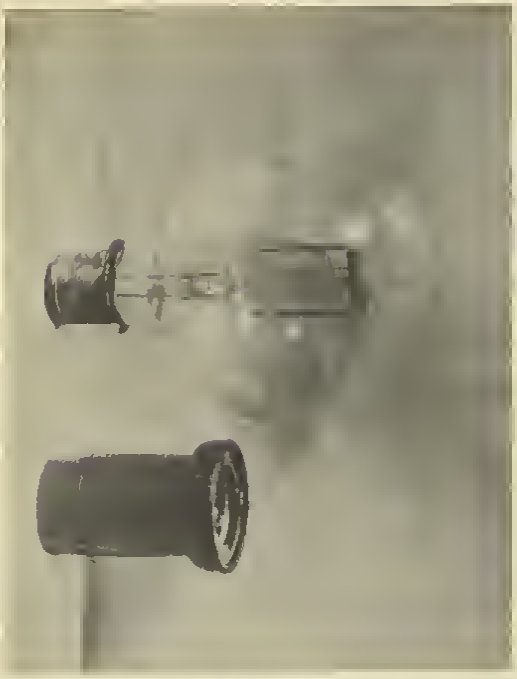


Fig. 13—2000-watt lamp with pre-focused socket.

lumination design problem in that each new set may present aspects which are different from those of preceding scenes. There is no standardization of the lighting, nor is this suggested; however, there can be standardization of the lighting equipment, so that units will be readily available to take care of the lighting effects which are desired.

The lamps and reflecting equipment are but tools with which the lighting director works to produce attractive and effective photographs. Just as the artist works with paint, brush and canvas, so the cinematographer uses light, lenses and film to paint the screen picture. With lighting units available which can produce the fundamental lighting effects with a minimum of attention to their use and operation, the creative ability of the producing artist can be employed with complete freedom and his best talents be exerted in the production of screen pictures.

An Air Pioneer

(Continued from Page 26)

Force, came to the United States at the head of the British Air Mission he acted as pilot for Mr. Steene during the making of a five reel picture for instruction of cadets and students. General Lee was killed in 1919 and several others of his pilots lost their lives during the days when the planes were not so efficient as they now are.

When the history of motion pictures is written, as some day it will be, the cameraman will be assigned to his true place and clothed with the importance of his artistry. In that day the skillful and courageous men of the A. S. C. who have pioneered in cinematography and who have progressed in step with the industry will not be forgotten and among these will be the men like Steene, who have at the call of duty gone cheerfully "against the guns."

It is not, however, as an aviator that Mr. Steene would be known, but as an all around cinematographic artist, an honor accorded him by all who know his work.

Charles Rosher, A. S. C., has invented a new lens which will be marketed by The Mitchell Camera Corporation. A description of Mr. Rosher's lens will appear in the July CINEMATOGRAPHER.

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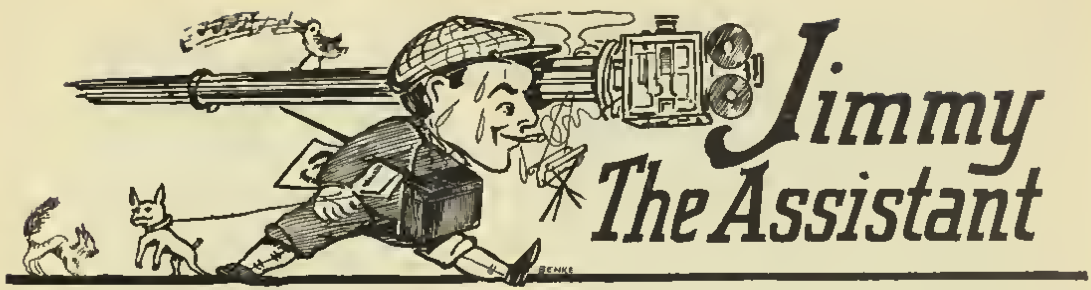
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[EDITOR'S NOTE.—*Jimmy is still away on location and in order not to disappoint his readers the editor reprints a letter written in 1921. The joke is that Jimmy is now a director himself.*]

DIRECTORS:

Directors is one of the biggest and most important wheels in the movie machine. Directors is to the movie plant what gasoline is to an auto. A good organization with a hum director is like a $10,000 gas-hack burning coal oil. And versa-visa, a good director with a hum company is like running an 1876 flivver with drug store gas hopped up with ether. It may blow hell out of the motor, but it sure perambulates while it lasts.

The evolution of directors has evolved considerable since I first busted in. First place I ever was at was a dinky little hole way over on the East Side in New York, where you climbed over a lot of dago kids to get into the studio. The director was a fat guy in shirt sleeves, who probably held at that time the all-American perspiring record, and he sounded like a swearing instructor demonstrating some new ones. He was swearing because the camera had ran out of film and an actor had moved. In them days, when the film ran out, everybody held still while the cameraman reloaded, and then continued the scene. How times has changed. Nowadays, when the film runs out, it ain't the actors that gets cussed out.

Seemed like the director's pet idea at that time was to save film. Action was boiled down to the shortest possible footage. It was not "how good" but "how short." Actors just natcherally developed into sprinters.

Directors almost had to be hard-boiled. Their work was more like football coaching than anything else. It took a lot of razzing to get the necessary speed out of the actors. But then, everything else was the same way. Frinstance, the negative which we today treat like it was a consumptive baby with a busted back, they then used to handle like they had 278 duplicates of it. After the negative man had done all the dirt he could they used to take it down in the cellar and project it at double speed on a worn-out projector that they couldn't use in theators on account of it chewing the film all up. But them days is gone, and so has the case-hardened director.

The successful director of today is a artist, business man, diplomat, fighter, dramatist, writer, for the most part, and a student of almost every other sport, profession, trade and art in the world. These qualities is mixed in various ways, and that's why we have so many different kinds of directors. I've worked with about five or six of the best known typss. The first one was of the old-fashioned blood-and-iron school. He had a fight on his hands every two minutes, and his favorite saying was: "Shut up; I'm the boss here!" He got along fine as long as he handled Manhattan cowboys, but later on, when stars begun to appear, they gave him a temperamental stage beauty, and the first time he opened up she had him fired. That was the last I ever saw of him. The rest of his type met tha same fate as far as I can find out.

Then I got hooked up with a stage director who was taking a whack at the movies during an off season in the stage business. He used to rehearse for hours to get just the right inflexshun to the spoken titles and played most everything in long shots. It took about nine hours to look at a reel of his stuff, it was so slow. No jazz, nor pep, nor nothing. The first picture he made was a light, little frothy thing about a idiot who goes crazy, wrote by a guy named Ibsen, I think it was. The director used 500 feet of action and 4500 feet of titles in the finished perduction. I worked three pictures with him and then got fired because I dropped a toothpick when he was rehearsing. He afterwards got to be a pretty good director after he had learned somsthing about the game. But he was a whole sackful of lemons at first. During the first two years in the business he got hired and fired oftener than I did, which is going some.

I knew a director once who new as much about picture-making as he didn't know about business methods, and he knew absolutely nothing about business. He got to the place where he never flivvered a scene, and his finished perduction was wonderful. But the blamed idot would fiddle around, and stall, and delay, and wait, and pretty soon shoot a scene; then call it a day. Then he'd get an inspiration and call everyone back and work all night. Then he'd decide Miss So-and-So wasn't the type, or else the whole sequence was a bum hunch and call it off. Or else he'd order 500 extras and get interested watching a spider or talking over the next story and not get a scene, or else decide he didn't need 'em after all, and let 'em go, only to remember he did need 'em at that, and calls 'em back the next day. His system seemed to be to spend money until the stockholders had to hock their socks for carfare, then double their investments for 'em over night with another knock out.

I new another director who seemed to think that "big stuff" made the pictures. He'd rush through all the heart interest stuff so's to be able to spend lots of time on a big ball room set, which finally gets blowed up. He thought a perfect perduction was a series of battles, shipwrecks, automobile accidents and mob scenes, and that plot and character building was a necessary evil. I've seen plenty of good pictures spoiled that way. This class of directors don't seem to savvy none that a story is a story, and it's big, medium or skinny, accordin' to its story substance, and that "big stuff" can't be dragged in by the ears to make a thin story big or a big story bigger.

There's directors, and directors and directors. There's probly as many different types of directors as there is directors. I've worked for lots of 'em, and I couldn't begin to describe 'em all, but I can say this: that a director, any director, is ultimately nothing more or less than a story teller. All of his art, business diplomacy, and the rest is learned so as to tell his stories better.

Freak directors is going out of date: in fact, freak everything is being eliminated from motion pictures. The types I've described is as scarce as dodos. They don't fit. The modern, successful director is—well, in short, he's just what the average citizen thinks he is not. The future of the screen is in the hands of the directors. They constitoot the most powerful group in tha perducting ends, and, although the author is the source of a story, its fate is determined by how it is put on. Maybe a good director can't improve on the work of an equally good author, but a bum director can sure made it look like a hunka. The big opportunity for the director is in the development of a new symbolism for the screen. The devices in use at present is few and far between. In books they's all kind of stunts like axagurated figures of speech and such like stunts, which, if you figure 'em out

cold and logical is impossible and all that, but the public has got used to 'em and knows what is meant by 'em, and hence all is jake.

Same way on the stage. Interior of De Puyster's drawing room has card board doors, but it gets by. Moon effect in the last act, made on a transparency drop with a Klieg cloud effect like as not gets a hand, altbough it looks as much like the real moon as a roller skate looks like a Perce Arrow.

Take music frinstance. Tbis Frenchman, DeBuzzy, makes all kinds of funny discords, and queer runs, and idiotic tunes, yet when someone plays him who knows how the music becomes a language, telling lovely things that were too suttle to be expressed any other way. Painting purple and green sbadows on a girl's face; yellow highlights, a light background. No more a copy of the sitter than nothing, yet it looks more like her than she does herself. Seven dabs of a brush and it's a locomotive and you accept it as such. You're used to acceptıng such things, and that is why art, litterachure and music is so full of variety. They have the idiums with which to express ideas too unusual to be told in the convensbunal way. The screen is mighty hard up for tbese handy little stunts. Fade out means end of sequence and lapse of time; lap-dissolve generally means retrospekt; small vignette, "what-be-sees," and that about winds up the arbitrary cymbolizm of pictures. Two of these stunts is altered stage devices.

Seems to me like the big job for tbe director is the development of a idiumatick language for the screen. It's not an easy job, 'cause the pubnc is slow to learn, but 'tis got to be done if pictures is to advance, and the director is the logical man to do it. Realism is gradually beıng given second place to art and suggestion, rather tban actual delineation, is being used more and more. And it should be. Suggestion is the most powerful thing in any of the other arts; why make an exception of the screen? I ain't much of a literary critik, but I think the climax of Dante's story of Paolo and Francesca is the finest example of delikat suggestion I know of, and I don't see why such things can't be done on the screen. It won't be long before we can do such things, and then we can tell any stories without fear of the censors.

Invisible Light

Owls and bats fly at night and cats of all sizes and varieties prowl through tbe darkness seeking prey. The owl discovers its prey from some height and swoops down upon it with the accuracy of a hawk attacking at noonday; the bat flies with bewildering speed and neither strikes obstacles in its way nor can be hit with a weapon in the hands of a man; the felines must have double sight, for they hunt with equal stealth at midnight or noon.

The owl sees poorly in sunlight; bats seem blinded by it. Cats narrow their eyes and reduce the pupils to the tinest slit in bright light. The bat is extremely sensitive to touch and it has been supposed that its swift darting about in the dark depends in some measure upon nerve guides akin to touch rather than wholly upon vision, as well as upon sensory nose-leaves and marvelously keen external ears. Scientists have declared that crepuscular and nocturnal birds and mammals see in less light than humans, but not in tbe dark, and that a state of darkness that is almost absolute to the eyes of man may be daytime to the eyes of owls and bats.

New tbeories of night vision may arise out of the recent discoveries of J. L. Baird, noted British genius whose successes include a television apparatus and invisible infra-red light. Most types of powerful searcblights contain infra-red rays in high degree and these rays, though invisible to the human eye, are employed by the human eye in the phenomenon of vision. Mr. Baird fits a filter to a searchlight lens permitting only infra-red rays to pass. Tte rays cannot be seen, but the objects they strike are made plainly visible to the buman eye, even to a distance of more than a mile, inasmuch as infra-red rays are better travelers than the rays of ordinary full light.

Heretofore light has been considered nothing more than the absence of darkness and darkness nothing more than the absence of light, but light must now be classified as sunlight, infra-red light or whatever other forma may be detected and named, while darkness is not a thing in itself, but a difference in eyes and their reactions to certain light rays. Thus the owl, tbe bat and the cat may depend upon rays little used by man, wbile man requires rays to which they are partly or wholly insensible.

John Mescall, A. S. C., found time off from bis work long enough to win th_ annual motion picture Golf Tournament at Riviera Golf Club recently. John is now engaged in photographing a Pathe-DeMille production entitled "Love Over Night," starring Rod LaRocque. This production is under the direction of E. H. Griffith, Burnett Guffey, A. S. C., is handling the second camera. The combination of Mescall and Guffey on the camera is becoming an established custom on the DeMille lot. Alexander Kahle, A. S. C., is in charge of still photography on tbe production.

Joseph DuBray, Secretary of the A. S. C., is devoting bis time between pictures to scientific work and the preparation of special papers for publication in TBE CINEMATOGRAPHER. Mr. DuBray is a perpetual researcher, but too modest to talk of his work. An announcement of achievement from bim some of tbese days, will tberefore not be unexpected.

Georges Benoit, A. S. C., witb Mrs. Benoit and the baby, are enroute to their old home in France, where Mr. Benoit will go to work immediately with Director Maurice Tourneur, an old friend and associate. Mr. Benoit will act as official representative in France of the A. S. C. and THE AMERICAN CINEMATOGRAPHER.

MOLE-RICHARDSON, INC.
STUDIO ELECTRICAL EQUIPMENT
6818-12 Santa Monica Boulevard
Hollywood California

Dec. 15, 1927

Mr. S. E. Snyder, Editor,
American Cinematographer
Hollywood, Californie

Dear Sir:--

It gives us great pleasure to acknowledge interest and help of members of the American Society of Cinematographers during our developing of incandescent equipment for studio stage lighting.

This cooperation has helped us to overcome an honest prejudice, created before the incandescent lamps had reached their present high standard of efficiency and before any real effort had been made to design equipment adapted to utilize to the fullest extent this flexible medium.

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We are especially appreciative of the fine spirit, patience and courtesy of Mr. Edward Gheller, A.S.C., who has worked with us from the beginning, giving of his time and services to a considerable extent for tests and experiments tending to verify conclusions reached by our Engineering Department.

Trusting that it may be our lot to ever work toward the ultimate in friendly cooperation with the American Society of Cinematographers, we are, with a very real appreciation,

Sincerely yours,

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FOR SALE—Bell & Howell Camera, 170 degree. Whole outfit new. Latest serial number, 794. Equipped with fastest Taylor Hobson Cooke lenses. Write for complete list of equipment and price. James Matthews, S.M.P.E., 325 West Seventh St., Long Beach, Calif. 648-166

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FOR RENT—Three Bell & Howell 170 Degree Cameras, F. 2.3 and F. 2.5 lenses, Mitchell Tripod legs. Complete equipment. Eddie Linden, 6017 Ellnor Ave., Hollywood, HEmpatead 3333 or A. S. C. office, GR 4274, GR 4704.

FOR RENT—Camera equipment: 1 Mitchell Camara, 1 Mitchell Speed Camera with attachment, new. 1 Bell & Howell, 1 Akeley (Full Equipment). Ted Tetzlaff, Phone GR 3255. 1724 N. Western Ave., Hollywood.

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FOR RENT—To reliable party, one Ball & Howell camera with Mitchell legs; Astro Lens F. 2.3., Fl. 3. 5 magazines. Fred Hoefnar mat hox. In perfect shape and fully equipped. Joa LaShelle. ORegon 6730.

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ONE DE VRY Motion Pictura Camera. Completa outfit. Alvin Wyckoff, Phone Cara A. S. C., GRanite 4274.

BELL & HOWELL. Victor Milner, 2321 Observatory Ave., Los Angeles, Californie. 526-944.

BELL & HOWELL—Phone Perry Evans, OL 3737 or Hallywood A. S. C.

BELL & HOWELL, 170, with 30, 40, 53 and 75 lens equipment. Baby tripod. Also B. & H. Cine motor. Gharlas Stumar. GRanite 3345. 7501 Lexington Ave., Hollywood.

FOR RENT—STILL CAMERAS

FOR RENT 1 8x10 Still Camera, focal plane shutter, complete, 1 Mitchell Friction Tripod, new, for B. & H. 1 Eyemo Camera with special lock. 1 4x5 Graflex B. & L. lens. 1 B.-H. Law Boy to fit new style B.-H Tripod head. Joe LaShella, 633 N. Sierra Bonita, ORegon 6733.

FOR RENT—MISCELLANEOUS

FOR RENT—One Cinemotor with Veeder Counter in first-class shape. Call B. B. Ray, OL-2727, 1115 N. Edgemont Street.

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FOR SALE—1 Craff Variable Focus Lens, Mitchell Mount, 40-50-75 m.m. Finder and photographing lenses. 18 x 10 Anaco printer. J. R. Lockwood, 561 Seward St. GLadstone 6115

FOR SALE, LENSES—Carl Zeiss, F. 2.5, 53 mm., mounted in latest B. & H. mount. Looks like new. Perry Evans, 413 No. Mariposa Ave., Hollywood, California

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ONE two-inch Bausch & Lomb F.3.7; one Dahlmeyar Pentac 37 mm. F.2.3. Georges Benoit, cara of American Society of Cinematographers, Hollywood, Californis.

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FOR SALE—Bell & Howell tripod with flat top to use with any camera. Complete with cover, $40.00. American Projectoscope Suitcase Projector, fine condition, motor and hand drive, $60.00. Above goods sent C. O. D., allowing examination for $5 00 deposit Don Malkames, 453 West Broad, Hazleton, Penn.

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